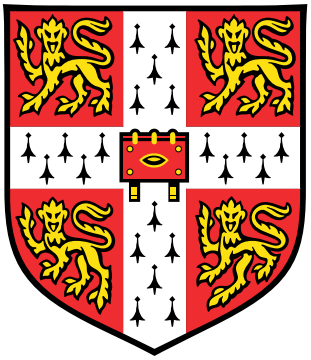
Realising the Right to Food in India

Insights from the Midday Meal Scheme in Rajasthan



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Realising the right to food in India:
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Abstract

This thesis examines the everyday realisation of rights in India's school-feeding programme, the Midday Meal Scheme. The commitment to realising the right to food in India is well-established. In 2001, a petition to the Supreme Court and subsequent orders made existing food-based schemes (including the Midday Meal Scheme) a legal entitlement under a right to food. These schemes then became the core components of the National Food Security Act in 2013. In consequence, eligible children in India have a right to a MDM that adheres to specific guidelines and have a broader right to food. Despite these commitments to rights, the extent to which India's food-based social protection schemes reflect a rights-based approach has not, hitherto, been explored. Indeed, although the importance of state-led, rights-based social protection schemes to address food insecurity is now widely recognised, the relationship between these means and ends has been insufficiently explored.

In this context, drawing on nearly one year of mixed-methods research in the Indian state of Rajasthan, I examine the extent to which India's Midday Meal Scheme adheres to a rights-based approach to realising food security. To do so, I examine three components of a rights-based system in the context of the scheme: rights-holders and their entitlements; duty-bearers and their duties; and the mechanisms through which duty-bearers can be held to account for the non-fulfilment of their obligations. I draw on detailed field research in two districts to show that, in its present form, the scheme is limited from the perspective of rights. Not all those in need are necessarily included in the scheme; the food that rights-holders receive often does not meet their needs, duty-bearers fail to adequately fulfil their duties; and accountability mechanisms fail to hold them accountable. Consequently, rights-holders often do not receive their entitlements and the right to food remains unfulfilled. Overall, I show that the realisation of rights to depends on the capabilities of rights-holders to realise their rights and on the capacity and motivation of duty-bearers to fulfil their duties.

Declaration

This dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration with others. This work is not substantially the same as any that I have submitted, or is being concurrently submitted, for a degree or diploma or other qualification at the University of Cambridge or any other university or similar institution. Furthermore, no substantial part of this dissertation has already been submitted, or is being concurrently submitted, for any such degree, diploma or other qualification at the University of Cambridge or any other university or similar institution. It does not exceed the prescribed word limit by my Degree Committee of 80,000 words.

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Acronyms

AAY	Antodaya Anna Yojana
AIE	Alternative and Innovative Education
AHS	Annual Health Survey
AMSS	Annapurna Mahila Sahkari Samitis
APL	Above Poverty Line
AWPB	Annual Work Plan and Budget
BEEO	Block Elementary Education Officer
BJP	Bharatiya Janata Party
BMI	Body Mass Index
BPL	Below Poverty Line
CAB	Clinical, Anthropometric and Bio-chemical Survey (AHS)
CAG	Comptroller and Auditor General of India
CCH	Cook-cum-helper
CEO	Chief Executive Officer
CESCR	Committee on Economic, Social and Cultural Rights
CRC	Convention on the Rights of the Child
CS	Case Study
DEO	District Education Officer
DLHS	District Level Health Survey
EGS	Education Guarantee Schools or Centres
ESC	Economic, social and cultural rights
FAO	Food and Agriculture Organization of the United Nations
FCI	Food Corporation of India
FCS	Food Consumption Score

GDP	Gross Domestic Product
GLV	Green Leafy Vegetables
GOI	Government of India
GOR	Government of Rajasthan
HDI	Human Development Index
HFIAS	Household Food Insecurity Access Scale
HFSSM	Household Food Security Survey Module
HH	Household
HLPE	High Level Panel of Experts
HRBAP	Human Rights-Based Approach to Programing
HS	Household Survey
ICCPR	International Covenant on Civil and Political Rights
ICDS	Integrated Child Development Services
IESCR	International Covenant on Economic, Social and Cultural Rights
IIPS	International Institute for Population Sciences
INR	Indian Rupees
ISKCON	International Society for Krishna Consciousness
JRM	Joint Review Mission
LBW	Low birth weight
MCPE	Monthly per capita expenditure
MDM	Midday Meal
MDMS	Midday Meal Scheme
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme.
MHRD	Ministry of Human Resource Development
MIS	Management Information System
MME	Management, Monitoring and Evaluation
MP	Member of Parliament
MOU	Memorandum of Understanding

NAC	National Advisory Council
NCLP	National Child Labour Project Schools
NER	North Eastern Region
NFHS	National Family Health Survey
NFSA	National Food Security Act
NGOs	Non-governmental Organisations
NIN	National Institute of Nutrition
NNMB	National Nutrition Monitoring Bureau
NP-NSPE	National Programme of Nutritional Support to Primary Education
NRHM	National Rural Health Mission
NSS	National Sample Survey
NUEPA	National University of Educational Planning and Administration
OBC	Other Backward Classes
OSF	On-site-feeding
PAB	Project Approval Board
PAC	Public Accounts Committee
PDS	Public Distribution System
PEEP	Public Evaluation of Entitlement Programmes
PEM	Protein-energy Malnutrition
PIL	Public Interest Litigation
PPP	Public-private Partnership
PRI	Panchayati Raj Institutions
PUCL	People's Union for Civil Liberties
RBA(s)	Rights-based Approach(es)
RDA	Recommended Dietary Allowance
RSOC	Rapid Survey on Children
RTE	Right to Education
SC	Scheduled Castes
SE&L	School Education and Literacy

SHG	Self-help Group
SFP	School-feeding programme
SMC	School Management Committee
SSA	*Sarva Shiksha Abhiyan* (Education for all Campaign)
ST	Scheduled Tribes
THR	Take-home rations
TPDS	Targeted Public Distribution Scheme
UDHR	Universal Declaration of Human Rights
U-DISE	Unified District Information System for Education
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations International Children's Emergency Fund
UPA	United Progressive Alliance
UT	Union Territory
WHO	World Health Organization
WFP	World Food Programme

Indian states/ Union Territories

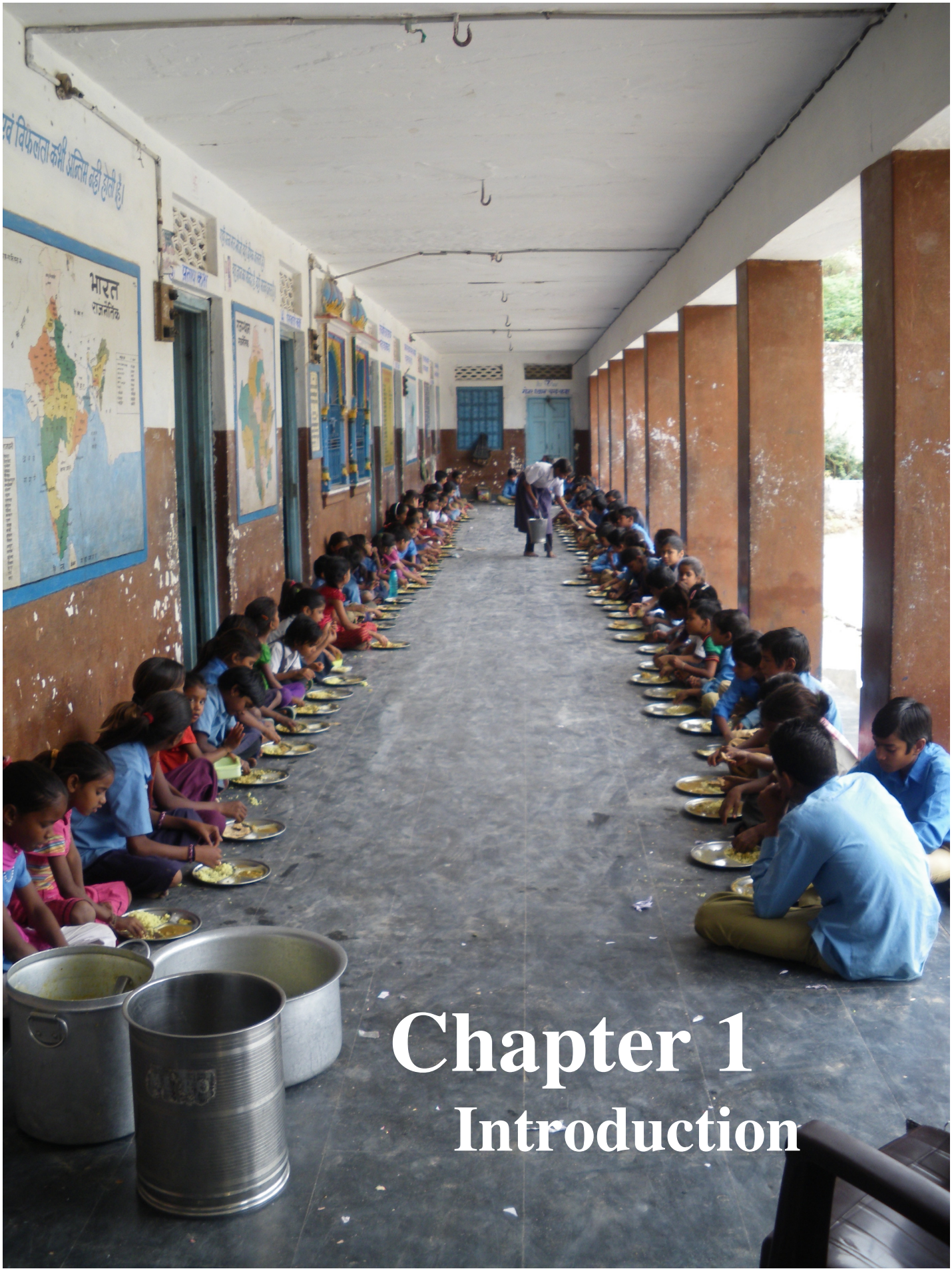
AP	Andhra Pradesh
AR	Arunachal Pradesh
AS	Assam
BR	Bihar
CG	Chhattisgarh
GA	Goa
GJ	Gujarat
HR	Haryana
HP	Himachal Pradesh
JK	Jammu and Kashmir
JH	Jharkhand
KA	Karnataka
KL	Kerala

MP	Madhya Pradesh
MH	Maharashtra
MN	Manipur
ML	Meghalaya
MZ	Mizoram
NL	Nagaland
OR	Orissa
PB	Punjab
RJ	Rajasthan
SK	Sikkim
TN	Tamil Nadu
TR	Tripura
UK	Uttarakhand
UP	Uttar Pradesh
WB	West Bengal
TN	Tamil Nadu
TR	Tripura
AN	Andaman and Nicobar Islands
CH	Chandigarh
DH	Dadra and Nagar Haveli
DD	Daman and Diu
DL	Delhi
LD	Lakshadweep
PY	Pondicherry

Glossary

Aadhaar	Meaning foundation or base, it is the name of India's biometric identification system
Adivasi	Tribal groups
Akshaya Patra	An NGO supplying the MDMS
Anganwadi	Meaning courtyard or shelter, the term is used to refer to the centres in the ICDS programme
Antodaya Anna Yojana	Subsidised food for the poorest households under the PDS
Annapurna Mahila Sahkari Samitis	Women's co-operative committees
Chiku	Sapodilla fruit
Chulha	An earthen or brick stock
Crore	Denotes 10 million in the Indian numbering system
Dal Dhokli	Balls or sheets of dough prepared in dal (lentils)
Dalit	Former "untouchables", the lowest caste
Ghoogri	Boiled wheat with sugar, sometimes with oil and nuts
Godown	A warehouse
Gram Panchayat	Village Council
Gram Sabha	Meeting of all adults who live within the panchayat
Kadhi	A thick "gravy" made from chickpea flour and yoghurt
Khichdi	A dish made from rice, lentils and spices
Madarsa/Maqtab	A school for the study of Islam
Namkeen	Salty, savoury snacks
Panchayati Raj Institution	A system of governance consisting of three levels: a *Gram Panchayat* (village-level), a *Panchayat Samiti* (block-level) and the *Zila Parishad* (district-level)
Poha	Dish made from flattened rice
Rajsambhar/sambhar	A soup/stew made with lentils and vegetables
Roti	A flatbread, circular in shape. Also known as a chapatti
Sabji	Vegetable
Sarpanch	Elected head of the village government (panchayat)
Sarva Shiksha Abhiyan	Education for all Campaign
Shiksha karmi	Education worker, a teacher with only a school-level education

Swach Bharat Abhiyan	Clean India Campaign
Swach Bharat: Swach Vidyalaya	Clean India: Clean Schools
Tehsil	An administrative area, typically consisting of a main city or town and villages
Tehsildar	The chief official of the tehsil
Tiffin	Used to refer to both a packed lunch and the container in which it is carried
Tithi Bhojan	'Date meal'- an initiative for the community to contribute food and equipment to the MDMS
Utsav Bhoj Yojana	Festival Feast Scheme, another initiative for community involvement in the MDMS
Zila Parishad	District Council



Chapter 1
Introduction

Chapter 1

Introduction

1.1 The Research

The paradoxes of the world food system are well-known and well-rehearsed. Put briefly, although more food is now produced than ever before (Patel, 2013), hunger persists on an unacceptable scale. According to the Food and Agriculture Organization of the United Nations (FAO), 793 million or 10.9% of the world's population are undernourished[1] (2015: 8). At the same time, and indeed a product of the same system (Patel, 2013), a further 1.9 billion adults are overweight, of which 600 million are obese[2] (Word Health Organization [WHO], 2016). Of particular concern here is child malnutrition. Globally, half of all deaths of children under five are the result of undernutrition, equivalent to an annual loss of 3 million lives (United Nations International Children's Emergency Fund [UNICEF], 2017). Those that survive live 'short and limited lives' (Li, 2010: 1); physical and cognitive development can be impaired, to the detriment of education, future economic productivity and health. Hunger, malnutrition and want thus continue to exist amid plenty.[3]

Nowhere are these contradictions more striking than in India. The country is self-sufficient in grain production (Dev and Sharma, 2010) and is the world's largest exporter of rice (Chandrasekhar, 2012). Technically, there is enough food for all. Furthermore, in recent decades India has experienced rapid economic growth; Gross Domestic Product (GDP) per capita increased from US$309 in 1991 to US$1,581 in 2015 (World Bank, 2016). The prevalence of obesity and obesity-related diseases has risen, particularly for higher income groups in urban areas (Kalra and Unnikrishnan, 2012; Kmietowicz,

[1] See Appendix A.1 for a discussion of the FAO's methodology.
[2] Defined using standard Body Mass Index (BMI) cut-offs, outlined in Section 2.2.1.
[3] The inclusion of 'want' reflects Poppendieck's (1998) argument that using only 'hunger' obscures causes and other needs and thus that 'want amid plenty' was a more appropriate description of the problems in the US.

2015; Wang *et al*., 2009). Yet, the decreases in hunger and malnutrition that typically accompany economic growth have not been observed (Haddad, 2013; Pritchard *et al*., 2014; Ruel and Alderman, 2013; Subramanyam *et al*., 2011). To illustrate, the prevalence of underweight-for-age children is expected to fall at half the rate of GDP growth (Pritchard *et al*., 2014). Given that India's GDP grew on average by 4.2% per annum between 1990-2005, one would predict the prevalence of underweight children to have fallen by 27% during this period (Gillespie and Kadiyala, 2011). Instead, prevalence decreased only by ~10% (*ibid*). Although recent data show improvements, it is still estimated that 39% of children under five are stunted, 30% are underweight and 15% are wasted[4] (GOI, 2016c). In the words of Haddad (2009: 1): 'India is an economic powerhouse and a nutritional weakling'.

Increasingly, efforts to address hunger, malnutrition and food insecurity draw on the concept of a right to food, commonly defined as the right of all people to have access to 'food in a quantity and quality sufficient to satisfy the dietary needs of individuals, free from adverse substances, and acceptable within a given culture' (Committee on Economic, Social and Cultural Rights [CESCR], 1999). A rights-based approach (RBA) recognises that people have rights and are rights-holders and that the state and, to a lesser extent other actors, have a duty to *respect*, *protect*, and *fulfil* the right to food (Eide *et al*., 1984). Fulfilling the right to food has two dimensions. States must *facilitate* the right by strengthening people's access to means of livelihood. For those unable to enjoy the right to food by the means available, states must directly *provide* the right to food (CESCR, 1999). It is the state's responsibility to provide a right to food that is the focus of this thesis. Direct provision by the state includes those initiatives which enable access to food, such as subsidies and employment schemes, and the direct provision of food, such as supplementary and school-feeding programmes. The importance of grounding these social protection schemes in a RBA is also increasingly recognised (Ajemian, 2014; FAO, 2004; 2012; 2014; High Level Panel of Experts [HLPE], 2012).

Not only is India a prime example of the problems of hunger, malnutrition and food insecurity, it is also an exemplar of the recognition of the right to food. In 2001, the contradictions of India's food system came to a head. As starvation deaths occurred in areas of Rajasthan which were facing drought for a third consecutive year, government warehouses were overflowing with grain (Guha-Khasnobis and Srinivasan, 2007; Srinivasan and Narayanan, 2007). Consequently, the People's Union for Civil Liberties (PUCL) launched a petition in the Supreme Court of India on behalf of the poor of Rajasthan (*People's Union for Civil Liberties v. Union of India,* Writ Petition (Civil) No. 196 of 2001). The petition sought the provision of relief stipulated under the 1962 famine codes and the enforcement of the constitutional right to food (Birchfield and Corsi, 2010; Hassan, 2013).[5] In response, the Supreme

[4] These terms are defined in Chapter 2 and discussed further in Appendix A.
[5] The petition and relevant orders are outlined in Appendix B.2.

Court made existing food-based government schemes a legal entitlement. These schemes included the provision of subsidised grain under the Public Distribution System (PDS), the provision of food to children below the age of six and pregnant and new mothers under the Integrated Child Development Services (ICDS) programme and the provision of free cooked lunches to children at school under the Midday Meal Scheme (MDMS). The petition and Supreme Court Order 'transform[ed] the policy choice of the Government into enforceable, justiciable rights of the people' (Ziegler, 2006: 11). The petition and subsequent orders, known as the 'right to food case', have been widely lauded and hailed as a 'landmark initiative' (Birchfield and Corsi, 2009: 693), not just for the right to food in India, but for RBAs in general (Guha-Khasnobis and Srinivasan, 2007). The right to food case paved the way for the 2013 National Food Security Act (NFSA). The Act aims to 'provide for food and nutritional security in human life cycle approach, by ensuring access to adequate quantity of quality food at affordable prices to people to live a life with dignity' (*NFSA*, 2013). The Act specifies the entitlements and duties in the PDS, ICDS and MDMS.

As the figures on child malnutrition in India indicate, a legal commitment to realising a right to food, even when coupled with economic growth and long-running social protection schemes, does not automatically guarantee a right to food. As Gupta (2012) asked: 'After more than sixty years of development efforts by the postcolonial state, why do so many of India's citizens continue to be subjected to the cruelties of endemic hunger and malnutrition and to be deprived of… basic necessities…?' (3). One must also ask why is the right to food in India far from being realised? Commentators recognise the difficulties in realising the right to food. Drèze (2004a: 1726) noted that 'difficulties arise as soon as we try to flesh out this broad definition [of the right to food] and translate it into specific entitlements and responsibilities'. Li (2010: 18) wrote that 'in the context of the autonomy of states, difficulties in determining beneficiaries and reaching them and corruption, the aim of "making live" hundreds of millions of deeply impoverished Indians is very difficult to accomplish'. Yet, the practical question of realising the right to food has not been studied further. Previous studies of the right to food in India (e.g. Birchfield and Corsi, 2009; Guha-Khasnobis and Srinivasan, 2007; Srinivasan and Narayanan, 2007) have typically focussed on the right to food case, not whether legal entitlements are realised or the extent to which rights are reflected in the design and realised in the implementation of specific schemes.

My research goes beyond praising India for its legal recognition of the right to food, to examine the everyday realisation of rights, both the right to specific entitlements and the broader right to food. To do this, I focus on India's MDMS. Following the 2001 Supreme Court Order, the MDM became a legal entitlement. The scheme is now the largest school feeding programme in the world, providing lunch to over 100 million children each day. I focus on the MDMS as it has been less extensively researched

than the ICDS[6] and is often absent from discussions on the right to food and food security (for example Desai *et al*., 2016b; Devereux *et al*., 2008; Pritchard *et al*., 2014). The greater volume of research concerning the ICDS compared to the MDMS is not surprising; adequate nutrition is particularly important in the first 1000 days of life (Black *et al*., 2013) and therefore the ICDS has a greater potential nutritional impact. Nevertheless, the MDMS is still important from the perspective of nutrition and food security as studies have shown the potential for growth catch-up in later childhood (see Appendix A). Moreover, the MDMS is an important part of the life-cycle approach of the NFSA and is the only scheme targeted at children aged six and above. The MDMS costs the Indian government more than 90 billion Indian Rupees (INR)[7] per annum and affects more than 100 million children. Given the scale and importance of the MDMS, there is an urgent need for in-depth study of the scheme.

Every rights-system has three components: rights-holders and their rights; duty-bearers and their duties; and the accountability mechanisms by which the duty-bearers can be held accountable for the non-fulfilment of duties (Kent, 2005). In this thesis, I examine these three components in both the design of the MDMS and, using empirical evidence from two districts in Rajasthan, in the implementation of the scheme. I also examine whether duty-bearers fulfil their duties and thus whether rights-holders receive their entitlements. RBAs also concern both outcomes and processes (Jonsson, 2003; 2005). Thus, I consider whether the MDMS contributes to the realisation of the right to food and whether the MDMS adheres to the principles of human rights: participation, accountability, non-discrimination, transparency, human dignity, empowerment and the rule of law.

1.2 Outline

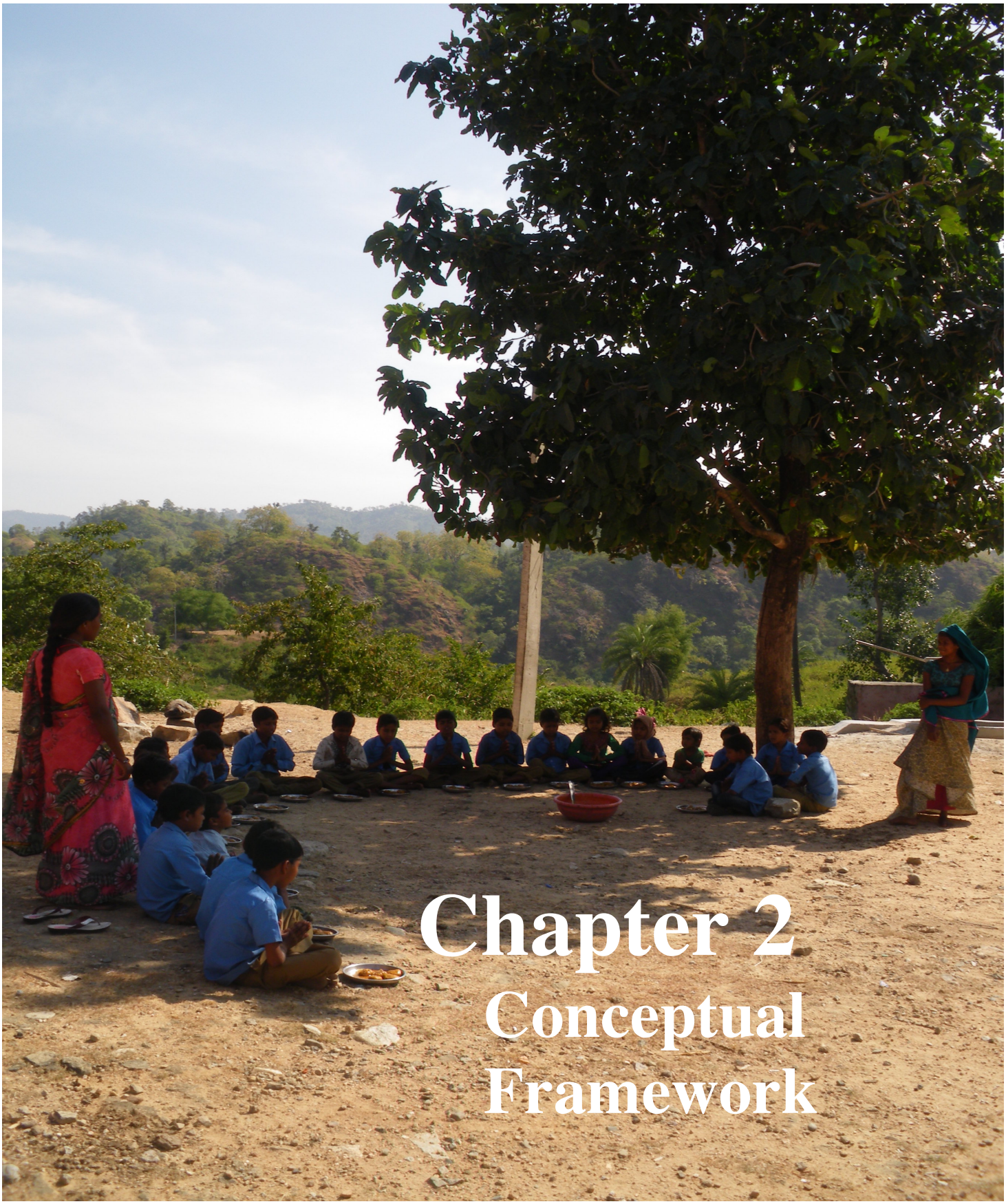
This dissertation is divided into nine further chapters. In Chapter 2, I begin by reviewing the literature on social protection and school feeding programmes including the MDMS, RBAs and the right to food. I then bring together literature from a range of disciplines to explore the three components of a rights-system in more depth. I then examine literature on power and public policy and outline the questions guiding this study. In Chapter 3, I present an overview of the geography, socio-economic and cultural environment and food security situation in Rajasthan and the two study districts. I then profile the four administrative blocks and the 43 sampled locations in which I conducted research. I outline the practicalities of the fieldwork and the methodology used to answer my research questions.

[6] I review studies on the ICDS and MDMS in Appendix B.4 and B.8 respectively.

[7] At present (Spring, 2017), US$1 is approximately INR 64.69 and £1 is INR 83.6, meaning the annual budget for the MDMS is equivalent to US$1.39 billion and £1.07 billion (one billion being understood as one thousand million). However, at the time of fieldwork in 2014-2015, £1 was equivalent to approximately INR 100. Due to this fluctuating exchange rate, all references to currency are provided in INR.

Having set out such necessary background and context, in Chapter 4 I examine the MDMS 'on paper'; how the MDMS should be organised and function according to policy. I outline the scheme's objectives and detail the three components of the rights system. In Chapters 5-8, I examine the extent to which these norms and guidelines are adhered to. In Chapter 5, I consider who is eligible to consume the MDM, who consumes the MDM in practice and the impacts of inclusion in and exclusion from the scheme. Overall, I demonstrate that the needs of rights-holders vary, that multiple factors beyond eligibility determine MDMS consumption and that many children who need the scheme are excluded. In Chapter 6, I focus on entitlements; the food that rights-holders receive. Taking the standard definitions of food security and the right to food as starting points (see Sections 2.2.2 and 2.3.3), I examine the quantity, quality, safety and cultural acceptability of the food served in the MDMS. I demonstrate the varying but limited extent to which the guidelines and norms on these issues are followed. In Chapter 7, I consider the duty-bearers at the school-level. I examine the duties of school-management committees, teachers, cooks, the community and non-governmental organizations (NGOs) and reflect on issues relating to and stemming from their involvement. I show how the fulfilment of duties is dependent on multiple factors that determine the capacity of duty-bearers to fulfil their duties. Throughout Chapters 5-7, I repeatedly demonstrate empirically the non-fulfilment of entitlements. In Chapter 8, therefore, I examine how accountability mechanisms operate in practice. I consider both internal accountability from within the government and external accountability from rights-holders and their representatives. I show limitations in both forms.

In Chapter 9, I bring together these empirical findings and address my research questions. I show that the realisation of the right to a MDM and the right to food depend on multiple factors; the capabilities of rights-holders to realise their rights; the demands placed on duty-bearers and their capacity to fulfil these demands, as determined by structure and agency. To conclude, in Chapter 10 I outline the methodological, empirical and theoretical contributions that the thesis has made.



Chapter 2
Conceptual Framework

Chapter 2

Conceptual Framework

2.1 Introduction

This thesis is concerned with the ability of rights-based social protection to address food insecurity and concentrates on India's school feeding programme. Eligible children in India have a right to a MDM, which is part of a larger right to food. Therefore, I begin this chapter by reviewing the literature on social protection and school-feeding programmes including the MDMS. I then review the literature on the right to food and RBAs. As Kent (2002: 7-8) wrote: 'To describe a rights system, we need to know...:

A. The nature of the rights holders and their rights;
B. The nature of the duty-bearers and their obligations corresponding to the rights of the rights holders; and
C. The nature of the agents of accountability, and the procedures through which they assure that the duty bearers meet their obligations to the rights holders.'

Although the literature on social protection, the right to food and RBAs is necessary to understand the context of this research, it provides little insight into the three dimensions of a rights system and thus the realisation of a right to food. Consequently, I draw on literature from a range of disciplines including development studies, sociology and political science to consider these three elements in turn. I then review the literature on power and public policy. I end by outlining the research questions guiding this study.

2.2 Social Protection and School-Feeding Programmes

2.2.1 Social Protection

Social protection has rapidly although 'quietly' become part of development policy since the beginning of the 21st Century (Barrientos and Hulme, 2008). In contrast to safety nets which fell out of favour in the 1990s, social protection schemes not only prevent people from falling into destitution in response to shocks, but have broader aims to reduce poverty and protect against vulnerability. Although 'social protection' is used in a variety of ways, here I use Devereux and Sabates-Wheeler's definition (2004: iii):

> Social Protection describes all public and private initiatives that provide income or consumption transfers to the poor, protect the vulnerable against livelihood risks, and enhance the social status and rights of the marginalised; with the overall objective of reducing the economic and social vulnerability of poor, vulnerable and marginalised groups.

Social protection measures are commonly categorised by their objectives (Kabeer, 2010b), as outlined in Table 2.1. As schemes can have more than one objective, these categories can overlap (Devereux and Sabates-Wheeler, 2008).

Table 2.1: Categories of social protection, based on Guhan (1994) and Devereux and Sabates-Wheeler (2004; 2008)

Type	Function	Examples
Provisional	Provide relief from poverty and deprivation	Social assistance, such as social pensions and disability benefits. Social services, such as orphanages.
Preventative	Similarly to safety nets, these prevent people from falling into deprivation.	Social insurance such as maternity benefits and unemployment benefits.
Promotive	Enhance incomes and capabilities. These can be targeted at households or individuals.	School feeding, microfinance and public works that provide food or cash.
Transformative	Address issues of social justice and exclusion	Collective action for workers' rights, protection for socially vulnerable groups.

Social protection can be transformative, altering social relations and structural inequalities (Devereux *et al.*, 2011). Transformative social protection is thus closely linked to rights and consequently India is

commonly cited in discussions of social protection and social justice (e.g. Chopra & te Lintelo 2011; Devereux *et al*., 2011). However, as Chopra & te Lintelo (2011) acknowledge, a multitude of actors and the interactions between them affect social protection programmes and the realisation of rights depends on the framing and recognition of rights and on the ability of citizens to assert and claim rights. Although this is recognised, how these factors affect the realisation of rights has not previously been explored thoroughly.

2.2.2 Social Protection in India

Social protection schemes in India are well-established, although are not typically discussed using the language of social protection (Chopra, 2014)[1]. The focus in this thesis is food-based instruments included in the 2001 Supreme Court Order and the NFSA. The entitlements these schemes provide are outlined in Table 2.2.

Table 2.2: Food-based schemes in India

Scheme	Year Launched	Entitlements (NFSA, 2013)
Targeted Public Distribution Scheme (TPDS)	PDS since pre-independence, revamped PDS in 1992, TPDS since 1997.	5kg of grain per person per month in each priority household at a maximum price of INR 3 per kg of rice, INR 2 per kg of wheat and INR 1 per kg of coarse grain. Priority households can constitute up to 75% of the rural population and 50% of the urban population.
Antodaya Anna Yojana (AAY)	2000	Ration card to the poorest of Below Poverty Line (BPL)[2] households, entitling them to 35kg of grain per household per month at the subsidised prices of the PDS.
Integrated Child Development Services (ICDS)	1975	Children below the age of six should receive food equal to 500 kcal and 12-15g of protein. Pregnant and lactating women should receive food equal to 600 kcal and 18-20g of protein. Malnourished children should receive 800 kcal and 20-25g protein.
Midday Meal Scheme (MDMS)	1995	Free hot, cooked lunched meal every day except school holidays to children in grades I to VIII or aged six to 14 in government and government-assisted schools. The lunch should contain a minimum of 450 kcal and 12g of protein for lower primary (grades I-V and approximately ages 6-10) and 700 kcal and 20g of protein for upper primary students (grades VI-VIII, approximately age 11-14).

[1] The multiple schemes are outlined in Appendix B.4
[2] Households can be categorised as BPL or Above Poverty Line (APL).

One must distinguish between the existence of rights and the realisation of rights (Kent, 2007). Thus, it is imperative to understand whether the rights outlined in Table 2.2 are fulfilled and the determinants of this fulfilment are understood. The literature on the outcomes of the schemes listed in Table 2.2 (excluding the MDMS) is outlined in Appendix B.6. Notably, in the literature, the outcomes of these schemes are not discussed in terms of the realisation of rights.

2.2.3 School Feeding Programmes

School feeding programmes (SFPs) are a type of social protection scheme. After the introduction of compulsory elementary education in the UK and US in the late 19th Century, educators and social reformers recognised that hungry children could not concentrate in school and consequently, school-feeding was introduced (Poppendieck, 2010; Vernon, 2007). In the UK and US, school meals were initially provided by charitable organisations before becoming government-funded national schemes in the 1940s (Poppendieck, 2010; Vernon, 2007). National SFPs did not begin *ab initio*, but rather accumulated 'from practical rationalities already developed in particular sites' (Rose 1999: 275). In recent years, school feeding has re-gained prominence as a social protection strategy, particularly following the food and financial crises (Bundy *et al.,* 2011). Between 2008-2013, SFPs were used to respond to food crises in 13 countries, to armed conflict in 12, to natural disaster in eight and to financial crises in five (WFP, 2013: 44). Now, almost every country in the world that can afford a SFP has one (Bundy *et al.,* 2009; Drake *et al.,* 2016).

SFPs take three forms: on-site feeding, typically lunch but sometimes breakfast; snacks distributed at school, such as high-energy fortified biscuits; and take-home rations such as flour.[3] SFPs, particularly in low-income countries, may be externally managed and funded such as by the WFP or funded and managed by national governments, as the MDMS is.

The objectives of SFPs are typically educational, nutritional and/or agricultural (Drake *et al.,* 2016).[4] Food at school can compensate parents for the direct and opportunity costs of education and has been found to increase enrolment and attendance (Ahmed and Ninno, 2002; Gelli *et al*., 2007; Kazianga *et al.,* 2009; Kristjansson *et al*. 2009; Vermeersch and Kremer, 2004). SFPs, especially breakfast programmes, reduce classroom hunger and, consequently improve concentration and educational performance (Ahmed, 2004; Ahmed and Del Ninno, 2002; Grantham-McGregor *et al.,* 1998; Powell *et al*., 1998; Simeon, 1998; Wesnes *et al.,* 2003). SFPs can also be linked to local agriculture to benefit local food producers, of which 'home-grown feeding programmes' in sub-Saharan Africa are the prime

[3] Examples of different SFPs are outlined in Appendix B.6
[4] A tabulated bibliography of the literature on the outcomes of SFPs is provided in Appendix B.7.

example (Alderman and Bundy, 2012; Drake *et al.,* 2016; Sumberg and Sabates-Wheeler, 2010).

SFPs have been found to reduce anaemia (Alderman and Bundy, 2012), increase BMI (Ahmed, 2004) and increase weight (see Kristjansson *et al.*, 2009). The nutritional impact of SFPs depends on the extent to which the SFP adds to consumption. If the food provided substitutes rather than supplements the food that beneficiaries would already consume, the net effect of the SFP on nutrition is reduced (Rogers and Coates, 2002). If the food in a SFP is nutritionally inferior to the food that would be consumed otherwise, overall food intake is reduced (*ibid*). Jacoby's (2002) study of school snacks in the Philippines, however, found that each calorie provided in school increased consumption by one calorie. Ahmed (2004) in Bangladesh and Gewa *et al*. (2012) in Kenya also found that snacks were a supplement. However, meals are more likely to be substituted than are snacks (Jomaa *et al.,* 2011). The likelihood of school meals acting as a substitute may also depend on the timing of the meal, the recipient's age, a household's understanding of school meal content and the household food situation (Essuman and Bosumtwi-Sam, 2013; Jomaa *et al*., 2011). Substitution has significant implications for nutritional outcomes and thus needs to be studied for each SFP. Substitution of the MDM in the study area is considered in Chapter 6.

Increasingly, SFPs are seen as part of a social protection strategy, that provides an income transfer to households. Bundy *et al*. (2009) estimate that the average contribution of school meals to household expenditure is 10% assuming that, following Jacoby (2002), the food will not be redistributed. Moreover, SFPs are seen as a means to increase human capital (Alderman and Bundy, 2012; Bundy *et al.,* 2009; WFP, 2013). In this view, the objective of a SFP is not to fulfil a basic human right or even a basic need, but rather it is an investment which increases productivity; 'The poor individual is in this way conceived, in classic neoliberal fashion, as a kind of micro-enterprise, earning a rate of return on invested capital' (Ferguson, 2009: 176).

Notably, the outcomes of SFPs are rarely discussed in terms of food security. Food security became part of official discourse at the 1974 World Food Conference and is now widely understood as 'when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life' (FAO, 1996).[5] Food security is considered to have four dimensions (Table 2.3).

[5] The history of the term is detailed further in Appendix A.2.5.

Table 2.3: The four pillars of food security (adapted from FAO, 2010)

Pillar	Description	Determinants
Availability	The amount of food that is available	Production, stocks, trade and aid.
Access	Physical and economic access to food	Incomes, prices, access to markets and safety nets
Utilisation	The use of nutrients by the body	Diet including quality, food safety and whether the nutrients can be absorbed as determined by health
Stability	The stability of the other three dimensions over time.	Food insecurity can be chronic (long-term) resulting from prolonged poverty or lack of access, or food insecurity can be transitory (short-term) caused by sudden fluctuation in food availability or access. Food insecurity may also be seasonal. Instability can be caused by adverse weather, political instability or economic factors such as rising prices.

The HLPE noted that 'drawing generalised conclusions on the food security impacts of school feeding is tricky because of marked variations across programmes in the quantity and quality of food provided' and whether the food is fortified with micronutrients' (2012: 43). However, they noted the positive impact of SFPs on food intake and nutrition. Bartfeld and Ahn's (2011) study of the US school breakfast programme, however, showed that examining SFPs using a broad notion of food security is possible. Bartfeld and Ahn found the breakfast programme reduced food insecurity, albeit only for families with low levels of food insecurity.

If SFPs are considered using the established framework of food security (see Section 2.3.4) numerous questions arise. Firstly, typically SFPs do not provide stable access to food as they cease during vacations (Lentz and Barrett, 2013; Nord and Romig, 2006; Russell, 2005). Studies in the US have found increased food insecurity and hunger in the summer (e.g. Andrews *et al*., 2000; Nord *et al*., 2001; Nord and Romig, 2006). As Russell (2005) wrote*:* 'Everyone in the hunger business knows that children go hungry in the summer' (35). For this reason, the US introduced a Summer Food Service Program to provide lunch to low-income children during the summer, reducing food insecurity and hunger (Nord and Romig, 2006). This issue has, however, received little attention outside of the US. Second, the qualitative dimensions of food security are rarely explored. The inclusion of nutritious and culturally

acceptable food in SFPs has received little attention, especially in developing countries. Both issues are considered in this research.

2.2.4 India's MDMS

Similarly to SFPs in the UK and US, the MDMS did not begin in a single place. The first school lunch programme for disadvantaged children began in Madras in 1925 and school lunch initiatives were subsequently established in Kerala in 1941, Mumbai in 1942, Bangalore in 1946 and Uttar Pradesh in 1953 (GOI, 1995). In the 1950s, school lunches were introduced in several states with the support of international agencies including the FAO and UNICEF (*ibid*). In 1982, the Chief Minister of Tamil Nadu launched the Noon Meals Scheme, largely as a political tactic to secure votes from women (Harriss, 1991). Indeed, although social protection schemes may have seemingly laudable objectives, they are not necessarily a product of benevolence.

By 1994, 20.48 million children in India were receiving a free school lunch, 7.4 million of which were in Tamil Nadu (*ibid*: 17). A national programme was launched in 1995, known formally as the National Programme of Nutritional Support to Primary Education (NP-NPSE). The programme started in a small number of blocks[6] and was introduced nationally in 1997-1998 (GOI, 2016b). However, the scheme was not universally implemented. Consequently, in November 2001, the Supreme Court directed all State Governments and Union Territories (UTs) to implement the MDMS. Not all states complied. Therefore, in April 2004 the Supreme Court ordered implementation by 1 September 2004.[7] The Guidelines also changed, requiring the meal to be provided in the summer vacation in drought-affected areas. Following this order, the MDMS became almost universally implemented across eligible schools (Khera, 2006). In 2007, the scheme's name was changed to the 'National Programme of Mid Day Meal in Schools' (Ministry of Human Resource Development [MHRD], 2007), widely referred to as the Midday Meal Scheme. With its inclusion in the NFSA in 2013, the scheme also became a key part of realising food security. The NFSA takes a life-cycle approach, within which the MDMS focuses on children of school-going age.

The Supreme Court Orders therefore changed the MDMS to become part of the right to food for all eligible children (Jayaraman, 2009). Due to the rapid expansion of the scheme, the MDMS has been described as 'one of the biggest success stories of the right to food litigation' (Guha-Khasnobis and Srinivasan, 2007: 9) and 'an excellent example of the power and utility of the PUCL case' (Birchfield and Corsi, 2010: 17). Yet, in-depth discussion of the scheme is often absent from literature on the right

[6] India is divided into states, which are, in decreasing order of size, divided in districts, *tehsils* and, in rural areas, blocks and villages. In the study state of Rajasthan, *tehsil* and block are used interchangeably.
[7] These orders are detailed in Appendix B.2.

to food and social protection in India. Moreover, far less research has been conducted on the MDMS compared to the ICDS programme (see Section 1.1).

Studies have shown the positive impact of the MDMS on school enrolment especially for grade I, girls and Scheduled Castes (SCs) and Scheduled Tribes (STs)[8] (Drèze and Goyal, 2003; Garg and Mandal, 2013; Jain and Shah, 2005; Jayaraman and Simroth, 2015; Lok Adhikar study, 2002). The MDMS has been found to increase school attendance (Afridi, 2011; Drèze and Kingdon, 2001; Jain and Shah, 2005). However, the sample size of these studies is small. The conclusion that the MDMS increases enrolment is typically based on four studies (Drèze and Goyal, 2003; Jain and Shah, 2005; Lok Adhikar, 2002) and thus the analysis of just 214 schools in four states. Moreover, few studies robustly show that increased enrolment and attendance are the result of the MDMS; Afridi (2011) and Jayaraman and Simroth (2015) are exceptions. The MDMS has also been found to remove classroom hunger and consequently improve concentration and educational performance (Afridi *et al.,* 2013; Singh, 2008).

A small number of studies have examined the nutritional outcomes of the MDMS. Afridi (2010) found that the MDMS decreased daily deficiencies in calories, protein and iron by 100%, 30% and 10% respectively. Garg and Mandal (2013) found that the MDMS increased food intake for ST children. Singh (2008) found that the MDMS compensated for the negative effect of drought on height and weight. Studies have examined whether the MDMS is a substitute or supplement (Garg and Mandal, 2013; Mehta *et al*., 2013; Mittal, 2006; Samson *et al*., 2007); however, the results are varied and collectively inconclusive.

The MDMS also aims to foster equality, achieved by children eating together, the employment of 'lower' caste cooks, the increased attendance of girls and the provision of food to those in government schools who are typically from the more disadvantaged section of society (Drèze, 2004b). The MDMS therefore has potential transformative effects. Yet, beyond the increased attendance of girls, these outcomes have not been rigorously shown. Moreover, studies have found caste-based discrimination in the scheme towards children and cooks (Drèze *et al.,* 2015; Drèze and Goyal, 2003; Jain and Shah, 2005; Lok Adhikar, 2002; Thorat and Lee, 2005).[9]

Despite the inclusion of the MDMS in the NFSA, no studies have considered the scheme from the perspective of food security. The link between the two is therefore unknown. For example, food security requires temporal stability (Table 2.3). Food security in India is known to vary seasonally (e.g. Agarwal,

[8] SCs, STs and OBC are those castes and tribes officially designated in the Constitution of India. These are traditionally disadvantaged groups.
[9] Reviewed in Appendix B.9.4.

1990; Hoddinott and Yohannes, 2002; Ramachandran, 2014; Saxena, 2013; Singh *et al*., 2006). The absence of SFPs in the summer is also known to be a problem elsewhere (Section 2.2.3). Yet, the consequences of the absence of the MDMS in the summer have not been examined; a gap this research seeks to address.

Beyond outcomes, studies have repeatedly found problems with the implementation of the MDMS, particularly inadequate infrastructure and the provision of food inadequate in both quantity and quality (Afridi, 2005; Blue, 2005; Goyal and Drèze, 2003; Jain and Shah, 2005; Planning Commission, 2010; Pratichi Trust, 2005; Samson *et al*., 2008; Shankar and Natasha, 2010; Shukla, 2014). Yet, these studies lack depth. For example, Goyal and Drèze (2003) reported that 86% of parents thought the quality of food was satisfactory and Drèze *et al*. (2015) found on average that 80% of people were satisfied or partly satisfied with the quality of the MDM. However, these studies did not consider why parents were or were not satisfied or the underlying determinants of MDM quality. I consider both in this research.

There are numerous limitations and gaps in the literature on the MDMS. Studies on the MDMS typically have small sample sizes. Only eight studies are based on samples of more than 20 schools: PROBE, (1999) in Drèze and Kingdon (2001), Centre for Equity Studies Survey in Drèze and Goyal (2003), Jain and Shah (2005), Jayaraman and Simroth (2015), Lok Adhikar (2002), Planning Commission (2010), Pratichi Trust (2005) and Sikligar (2011). There is also a lack of recent literature on the MDMS. Only five studies are based on fieldwork completed in 2010 or later: Afridi *et al*. (2013), Drèze *et al,* (2015), Paul and Mondal (2012), Mehta *et al*. (2013) and Shankar and Natasha (2010). Here, I seek to enhance this literature by providing a contemporary insight into a larger sample of schools.

2.3 The Right to Food and Rights-based Approaches

2.3.1 Rights-based Approaches to Development

Since the 1990s, the boundaries between human rights and development have eroded, giving rise to RBAs to development. RBAs are based on the principles of human rights and the creation of rights and duties (Gready, 2008). RBAs transform how development is perceived; from an act of charity to a system of duties and claims (Gready, 2008; Uvin, 2004). Those benefiting are no longer passive beneficiaries receiving paternalistic hand-outs, but are active participants and claimants (Molyneux and Lazar, 2003). Consequently, those benefiting are labelled 'rights-holders', not 'beneficiaries' or 'recipients'. Thus, development becomes political and development issues are seen as the failure of duty-bearers to fulfil their duties (Hickey and Mitlin, 2009).

In the 2000s, a considerable amount of scholarship focused on the potential strengths and weaknesses of RBAs (e.g. Archer, 2009; Gready, 2008; Hickey and Mitlin, 2009; Piron, 2005; Uvin, 2004). The strengths and weaknesses of RBAs outlined in Hickey and Mitlin (2009) are summarised in Table 2.4. In addition to the potentials listed in Table 2.4, the strength of a RBA is evident when compared to the main alternative, the basic-needs approach. In the basic-needs approach, development is conceptualised as an act of charity and the focus is on the realisation of basic needs only, without any indication of who has a responsibility to act (Jonsson, 2003). RBAs also differ from the poverty agenda, by focussing on rights as universal instead of poverty and the worst off (Archer, 2009; Hickey and Mitlin, 2009).

Table 2.4: The potentials and pitfalls of RBAs from Hickey and Mitlin (2009: 211-212)

	Potential	**Pitfall**
Conceptual	- Politically informed insights into problems and solutions - The legal perspective adds rigour and discipline - Development becomes for all rather than for just the poorest	- Analysis by analogy, not history or process - Idealistic and "western" solutions - Simplifies complex problems - Difficult to consider trade-offs - The focus on individuals distracts from the relational basis of poverty and social change
Organisation and Strategic	- Adds clarity and rigour to planning - New partnerships - Holistic approaches - Engages with political challenges - New resources and approaches to local organisation	- Difficult to prioritise - Partnerships may be uneasy - Does not resolve divides between social and economic interests - Focus on politics may compromise development agency
Political	- Clear obligations on duty-bearers - Focus on the state - Strengthens local struggles - Recipients become active claimants	- Can overburden the state - May undermine collective struggles - May be too confrontational for vulnerable groups - Exaggerates the agency of the poor and marginalised - May adversely incorporate people into political formations
Ideological	- Repositions development as a progressive struggle against discrimination and exclusion - Could reposition development within struggles for social justice	- Can reinforce a neoliberal agenda due to the focus on individuals, property rights and markets. - Western ideas may not be appropriate - Rights as ends are open to co-optation

Molyneux and Lazar (2003), Gready and Ensor (2005) and Hickey and Mitlin (2009) present a series of case studies of RBAs that typically consider the experiences of NGOs. These range from NGOs declaring that they have adopted a RBA to actors using the language of rights to make claims (Hickey and Mitlin, 2009). This plurality highlights that a single RBA does not exist (*ibid*) and thus that there is a need to explore what is meant when an approach is described as 'rights-based'. Moreover, whilst the renewed emphasis on the state is a key potential of a RBA, the adoption of a RBA by states themselves and the potential and pitfalls of this approach are rarely considered. The extent to which RBAs are and can be incorporated into national, government-led development projects requires further exploration. Consequently, in Chapter 9 I reflect on the adoption of a RBA by the Indian government and in Chapter 10 I consider the potentials and pitfalls of RBAs.

The most developed insight into RBAs in practice is the UN's Human Rights Based Approach to Programming (HRBAP) outlined by Jonsson (2003; 2005). Jonsson asserted that rights-based development is based on both desirable outcomes in the form of human rights standards and adequate processes that adhere to human rights principles (participation, accountability, non-discrimination, transparency, human dignity, empowerment and the rule of law). Jonsson outlined a five-step method for HRBAP, visualised in Figure 2.1, which focuses on the community. Capacity-gaps within communities are identified and programmes are designed to address these gaps. The approach rests on the assumption that 'rights are violated because claim-holders lack the capacity to claim the right, and/or duty-bearers lack the capacity to meet their duties' (Jonsson, 2003: 54). What is meant by 'capacity' is elaborated on in Section 2.5.6.

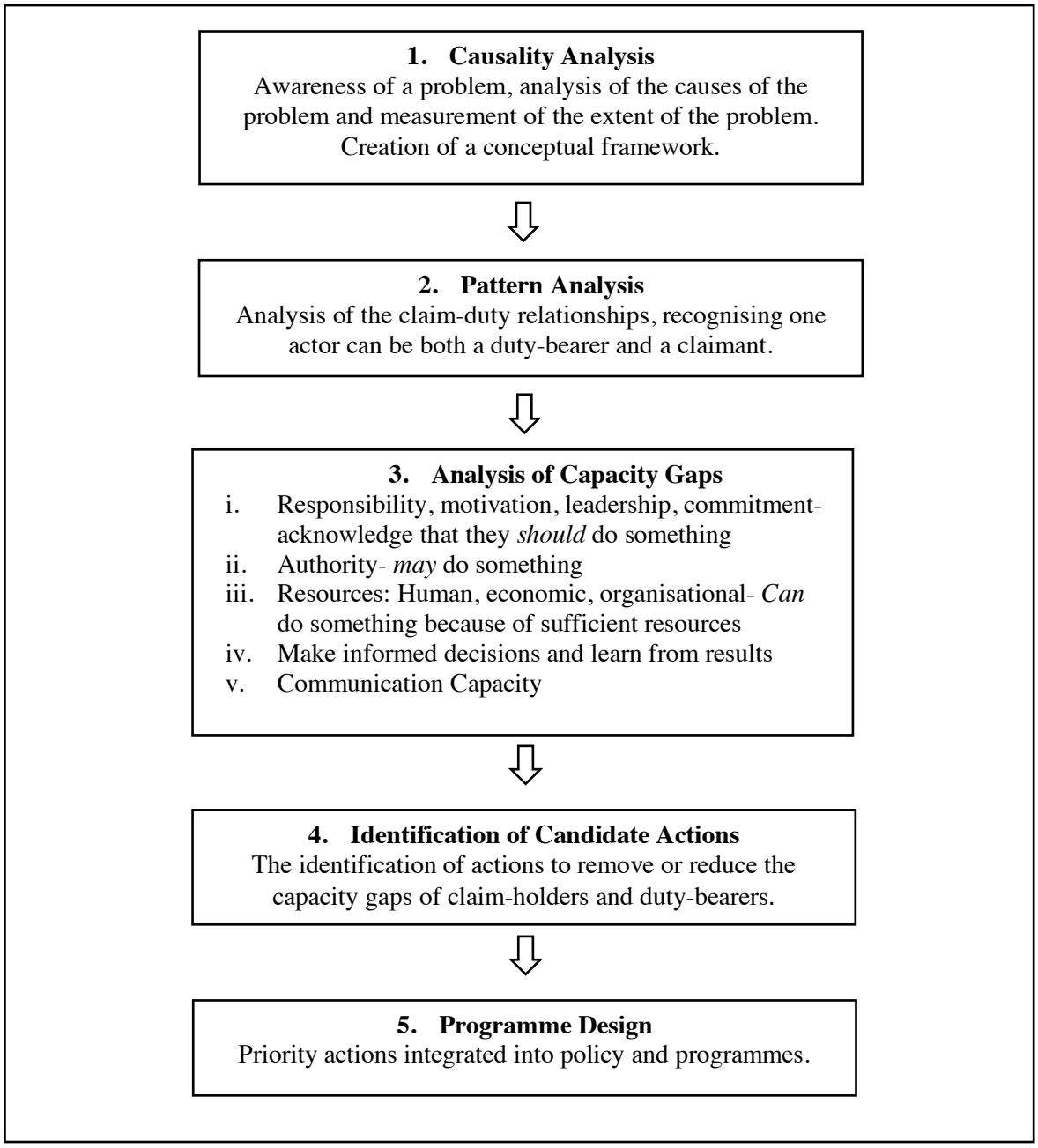


Figure 2.1: A depiction of Jonsson's (2003) Human Rights Approach to Programming

As will be shown in this thesis, the emphasis placed by Jonsson on the relationships between claim-holders and duty-bearers and on the capacity of duty-bearers to realise their duties is useful. Jonsson (2003) asserts that in a RBA, rights-holders must be '*capable* of claiming their right' (20). Although Jonsson uses the language of capabilities, these are not discussed in reference to the capability approach. Whilst I agree with Jonsson that RBAs require claim-holders to have the capability to realise their rights, what is meant by capability and how capability affects the realisation requires further attention. Thus, to supplement Jonsson's ideas, in Section 2.4.3 I review the capability approach. Jonsson's conceptualisation of capacity is explored further in Section 2.5.7.

2.3.2 Rights-based Approaches to Social Protection

Rights have increasingly become the rationale for social protection (Munro, 2008) and the importance of social protection in realising food security and a right to food has been recognised (e.g. Ajemian, 2014; Cruz, 2012; HLPE, 2012). From a rights-based perspective, social protection is not an investment in human capital, but is the manifestation of the obligation of the state to fulfil rights. The HLPE stated that: 'implementing social protection policies and programmes using a rights based approach is not only morally and legally appropriate but is likely to lead to improved food security outcomes' (2012: 11).

Despite the recognised importance of rights in social protection, there has been little discussion of social protection schemes from the perspective of rights. As Sepúlveda (2014: 1-2) argued:

> One clear omission in the global discussion about social protection thus far has been the lack of a deeper analysis of the human rights foundations, implications and outcomes of social protection…The emerging debate on the need for a rights-based approach has given rise to questions of precisely how a rights-based approach to social protection can best be achieved – that is to say, how the norms and principles of human rights can best be implemented.

Although the FAO have analysed the right to food in policy and legislation (e.g. Chapagai, 2014; Immink, 2014b) there has been little exploration in the academic literature of specific social protection programmes from the perspective of rights. Here, I examine the MDMS from a rights-based perspective.

2.3.3 The Right to Food

Modern human rights have their origin in the 1948 Universal Declaration of Human Rights (UDHR). The Declaration was later combined with the 1966 International Covenant on Civil and Political Rights (ICCPR) and the International Covenant on Economic, Social and Cultural Rights (IESCR). These two covenants exemplify the categorisation of rights as either civil and political or economic, social and cultural (ESC). Civil and political rights include the right to life and the right to freedom of speech. These are considered first generation rights (Vasak, 1977) and are 'negative rights', requiring the state to refrain from doing things. ESC rights or second generation rights include the right to health, education and food and are 'positive rights', requiring the state to act. For this reason, ESC rights have traditionally been considered non-justiciable, i.e. they cannot be used in a court or be the basis of legal action (Courtis, 2007; Uvin, 2004) and have received less attention than civil and political rights. Over time, however, the distinction between the two types of rights has eroded. Consequently, ESC rights including

the right to food have received greater attention in recent years (Robinson, 2004). The right to food was recognised in the UDHR, ICESCR, the Vienna Convention and the Convention on the Rights of the Child (CRC). For example, the latter recognised 'the right of the child to the enjoyment of the highest attainable standard of health' and the right 'to combat disease and malnutrition, including … the provision of adequate nutritious foods and clean drinking-water' (CRC, 1989: Article 24).

The right to food is therefore an older concept than food security; however, unlike food security the right to food remained vague for decades (Eide and Kracht, 2005) until General Comment 12 on the ICESCR in 1999. In the Comment, the right to food is defined as:

> The availability of food in a quantity and quality sufficient to satisfy the dietary needs of individuals, free from adverse substances, and acceptable within a given culture; The accessibility of such food in ways that are sustainable and that do not interfere with the enjoyment of other human rights. (CESCR, 1999: point 8).

The key terms used in this definition were explained in Comment 12, outlined in Table 2.5.

Table 2.5: Dimensions of the right to food defined in Comment 12 (CESCR, 1999)

Dimension	Meaning as defined in Comment 12
Dietary needs	The diet as a whole contains a mix of nutrients for physical and mental growth, development and maintenance, and physical activity that are in compliance with human physiological needs at all stages throughout the life cycle and according to gender and occupation. (Paragraph 9).
Free from adverse substances	Requirements for food safety and for a range of protective measures by both public and private means to prevent contamination of foodstuffs through adulteration and/or through bad environmental hygiene or inappropriate handling at different stages throughout the food chain; care must also be taken to identify and avoid or destroy naturally occurring toxins. (Paragraph 10)
Cultural Acceptability	Perceived non-nutrient-based values attached to food and food consumption and informed consumer concerns regarding the nature of accessible food supplies. (Paragraph 11)
Availability	The possibilities either for feeding oneself directly from productive land or other natural resources, or for well-functioning distribution, processing and market systems that can move food from the site of production to where it is needed in accordance with demand. (Paragraph 12)
Accessibility	Economic accessibility implies that personal or household financial costs associated with the acquisition of food for an adequate diet should be at a level such that the attainment and satisfaction of other basic needs are not threatened or compromised. Economic accessibility applies to any acquisition pattern or entitlement through which people procure their food and is a measure of the extent to which it is satisfactory for the enjoyment of the right to adequate food. Socially vulnerable groups such as landless persons and other particularly impoverished segments of the population may need attention through special programmes. Physical accessibility implies that adequate food must be accessible to everyone, including physically vulnerable individuals, such as infants and young children, elderly people, the physically disabled, the terminally ill and persons with persistent medical problems, including the mentally ill. Victims of natural disasters, people living in disaster-prone areas and other specially disadvantaged groups may need special attention and sometimes priority consideration with respect to accessibility of food. A particular vulnerability is that of many indigenous population groups whose access to their ancestral lands may be threatened. (Paragraph 13)

Comment 12 asserts that the right to food is more than 'a minimum package of calories, proteins and other specific nutrients' (paragraph 6) and that it is the responsibility of the state to realise the right progressively. Drawing on Shue (1980) and Eide (1987), Comment 12 (CESCR, 1999: paragraph 15) asserts that states must *respect*, *protect* and *fulfil* the right to food, and that:

> The obligation to fulfil (facilitate) means the State must pro-actively engage in activities intended to strengthen people's access to and utilization of resources and means to ensure their livelihood, including food security. Finally, whenever an individual or group is unable, for reasons beyond their control, to enjoy the right to adequate food by the means at their disposal, States have the obligation to fulfil (provide) that right directly.

It is not only states that are responsible for realising a right to food:

> All members of society – individuals, families, local communities, non-governmental organizations, civil society organizations, as well as the private business sector – have responsibilities in the realization of the right to adequate food. (*ibid*: paragraph 20).

Although similar, the right to food and food security are distinct. As the FAO (Immink, 2014a: 5) explains:

> The right to food includes additional requirements, namely that (a) the food security of those food-insecure and those vulnerable to food insecurity should be afforded the highest priority, and (b) the processes by which food security is achieved should conform to right to food principles. The first requirement is based on equity considerations. This means that food-insecure households and those vulnerable to food insecurity, as well as persons suffering from malnutrition, are clearly identified, and the reasons for their food insecurity are clearly understood. The second requirement signifies that the means of achieving food security and good nutrition are as important as the outcomes. Thus, right to food principles…should be applied in all actions undertaken towards achieving food security and good nutrition.

Food security has therefore become 'the corollary of the right to food: The State must take the necessary measures to ensure food security for everyone under its jurisdiction' (Eide, 2005: 85). Eide concludes that 'Food security is not out, but the right to food is fully in' (*ibid*: 91). Indeed, over the last 15 years, the right to food has been increasingly used in legal practice (Claeys, 2015). By 2011, the right to food

was recognised explicitly in the constitutions of 23 countries (Knuth and Vidar, 2011). The justiciability of the right to food has also been demonstrated (de Schutter, 2010), beginning in India in 2001. As is all too clear from the high levels of malnutrition in India (see Section 1.1 and Appendix A), formal commitments to rights do not necessarily lead to their realisation (Kabeer, 2003). Considering the realisation of rights in practice is therefore imperative (Haug and Rauan, 2002).

The FAO has led the way in considering the right to food in practice. In 2004, the FAO adopted voluntary guidelines on the right to food to guide practical implementation (Vidar *et al*., 2014). In 2014, the FAO outlined three 'action areas' to facilitate the realisation of the right to food: one should understand the causes of food insecurity and malnutrition, including knowing who the hungry, malnourished and food insecure are, where they are and why they face these problems; policy should adhere to human rights principles and marginalised people should be progressively empowered (Immink, 2014a). Yet, the FAO (Immink, 2014b) notes that the right to food only weakly underpins food security policies, particularly in Africa and Asia, and that such policies say little about either human rights principles or addressing the causes of food insecurity.

2.3.4 The Right to Food in India

The right to food in India is recognised by the ratification of international declarations (Section 2.3.3) and is enshrined in the country's constitution (Drèze, 2004a). In the Constitution of India, there are nine civil and political rights defined as Fundamental Rights which are legally enforceable. ESC rights are listed in the Directive Principles and considered non-justiciable. The right to food is implicit in Article 21 which asserts the 'fundamental right to life' and is more explicit in Article 47 of the Directive Principles which asserts that 'the State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties' (*ibid*). Based on the inclusion of welfare rights in the Directive Principles, Jayal (1999) argued that state welfare in India was 'grounded in ideas of charity, benevolence, and paternalism, and has therefore proved to be singularly unreceptive to challenges couched in the more egalitarian terms of claims to rights' (2).

Yet, since the beginning of the 21st Century, the distinction between the Fundamental Rights and Directive Principles has been somewhat eroded (Corbridge *et al.,* 2013). Decisions made by the Supreme Court have reconceptualised some of the Directive Principles as non-negotiable and justiciable (Olowu, 2009), beginning with the Supreme Court judgement on the right to food. The writ petition to

the Supreme Court was filed in April 2001 utilising the Public Interest Litigation (PIL)[10] mechanism (Birchfield and Corsi, 2009). The petition (Appendix B.2.1) argued that a right to food was part of the right to life under Article 21. On 28 November 2001, the Supreme Court ordered the full compliance of eight existing schemes; the provision of food under the PDS, *Antodaya Anna Yojana, Annapurna Anna Yojana*, the MDMS and ICDS and the provision of financial assistance under The Indira Gandhi National Old Age Pension Scheme, the National Family Benefit Scheme and the National Maternity Benefit Scheme.[11] Consequently, these schemes became legal entitlements under the right to food. The Supreme Court has issued multiple interim orders to direct the implementation of these schemes[12] and, in May 2002, appointed two commissioners on the right to food to report on implementation. The original petitioners formed the 'right to food campaign' which continues to work towards the goal of realising the right to food.

The rulings of the Supreme Court 'explicitly established a constitutional human right to food and determined a basic nutritional floor for India's impoverished millions' (Birchfield and Corsi, 2010: 15). Consequently, the 2001 petition and subsequent Orders are widely cited as the exemplary case of the justiciability of the right to food (e.g. Birchfield and Corsi, 2010; Devereux, *et al.,* 2008; FAO, 2009); Golay, 2009; Guha-Khasnobis and Srinivasan, 2007; Ziegler *et al.,* 2011). A 'rights revolution' followed (S.K.Das, 2013). The Right to Information Act and the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) were passed in 2005, The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act was passed in 2006 and The Right of Children to Free and Compulsory Education Act (RTE) was passed in 2009.[13] The NFSA was passed in 2013, which seeks to realise food security using the PDS, ICDS and MDMS. The NFSA also entitles pregnant and new mothers to a maternity benefit of no less than INR 6,000. As Chopra (2014) noted, 2004 'marks a historic break in the Indian state's approach to poverty alleviation' (85) after which rights became increasingly prominent. These Acts not only share the language of rights, but also were similarly established with the extensive involvement of non-state actors (*ibid*).

Academic discussion of the right to food in India has largely focused on the right to food case and campaign (Birchfield and Corsi, 2010; Guha-Khasnobis and Srinivasan, 2007; Hassan, 2013; Hertel, 2011). There has been little exploration of realising the right to food in practice. Despite the 2001 right to food case, the right to food in India is far from realised. In consequence, there is a pressing need to consider India's food security schemes from the perspective of rights; to understand the extent to which

[10] In India, a PIL can be introduced in a court by the court itself or by another party. This means that litigation does not have to be introduced by those who have had their rights violated, and can be introduced on their behalf. The PUCL launched the right to food case on behalf of the poor of Rajasthan.
[11] The schemes are detailed further in Appendix B.1.
[12] These orders are outlined in Appendix B.2.
[13] These Acts are explained in further detail in Appendix B.3.

they incorporate rights and can lead to the realisation of the right to food. This thesis aims to do just this.

2.3.5 SFPs and the Right to Food

Kent (2010: 154) noted that 'in many school feeding programs, children don't get what they should be getting'. Kent therefore argued for rights-based SFPs. The FAO (2008) have also stressed the need for SFPs to be rights-based and consequently developed 10 modules, each with several questions to ask, to assess the extent to which a SFPs reflect a RBA. I summarise these modules in Table 2.6 and outline them in full in Appendix B.8.

Table 2.6: Summary of FAO Modules on rights-based SFPs (FAO, 2008: 150-157).

Module	Summary of the key questions
1. Food and Nutrition Security Situation	- What are the main food and nutrition problems among the population and among school-age children? Where are these problems the most severe? What are the causes?
2. Policy	- What is the policy basis? What legislative mandate exists? - What are the budgetary allocations?
3. Institutional Framework of the Programme	- What institutions are involved and what are their roles? - Are mechanisms in place for the representatives of rights-holders and others to hold duty-bearers accountable?
4. Normative Basis of the Programme	- What are the norms for: Beneficiaries, nutritional guidelines, the menu, conformity with local eating habits, food delivery, school-based infrastructure, food quality and safety, food acquisition, the allocation of funds per child and the handling of funds?
5. Social Control Mechanisms	- Is there a social control mechanism to monitor the quality of implementation? - Are there instruments for remedial actions or compensation?
6. Recourse	- Are there recourse instruments available to students' parents?
7. Programme Design	- What problems are to be addressed and what are the intended impacts? - Does the programme anticipate community participation?
8. Programme Duty Bearers	- Do duty-bearers understand and fulfil their responsibilities? - Have duty-bearers been asked to account for their performance? - Do duty-bearers and the representatives of rights-holders understand the norms?
9. Programme implementation	- To what extent does implementation adhere to the norms? What and where are the divergences and what explains them? - How well is the targeting scheme applied? - Does monitoring take place?
10. Programme Impacts	- What are the impacts and how do they compare with the objectives? Do impacts differ among various geographical areas and by gender, age group, or socio-economic levels?

There are two notable examples of SFPs being recognised as legal rights. The first is the MDMS. The second is the Brazilian school feeding programme, part of the *Fome Zero* (Zero Hunger) programme, launched in 2003 in recognition of the right of citizens to quality food (Sidaner *et al.,* 2013; da Silva *et al*., 2010). Still, SFPs are rarely considered in relation to rights. In the overviews of SFPs by Alderman and Bundy (2012), Bundy *et al*. (2009) and Drake *et al*. (2016), a right to food is only mentioned in reference to the Indian right to food campaign. There is a pressing need to consider whether existing SFPs are rights-based and what rights-based SFPs might look like. In this thesis, I therefore consider the extent to which the MDMS reflects a rights-based approach.

2.3.6 Summary

There is increasing recognition of both the importance of realising a right to food and of the need for social protection schemes to be rights-based. India is considered the leading example of both. The recognition of a right, however, means little if that right is not realised. Consideration of the realisation of rights is lacking in the literature reviewed above. As has been established, any rights-system has three components: rights-holders, duty-bearers and their rights. However, it is not enough to merely acknowledge that these components exist; one must consider how each operates and affects the realisation of rights. Thus, in the next three sections I draw on literature from a range of disciplines to examine how each affects the realisation of rights.

2.4 Rights-holders and Capabilities

2.4.1 Targeting and Conditionality

For any social protection scheme with a finite budget, a decision must be made as to who to target. Targeting is practically problematic due to the difficulty in determining the targets. Two errors may arise; inclusion errors when the non-needy are included and exclusion errors, when the needy are excluded (Cornia and Stewart, 1993). Indeed, this is a known problem in India's PDS (e.g. Hirway, 2003; Khera, 2008; Mane, 2006; Svedberg, 2012).

In high and middle-income countries, SFPs typically target individuals by need (*ibid*). For example, America's school lunch programme provides free, reduced-price and full-price (but still subsidised) meals, determined by poverty levels (Poppendieck, 2010). In low-income countries, non-universal schemes target by districts or schools by need.[14] In contrast, the MDMS is targeted by age-group (grades I-VIII/6-14 years) and school type. There are three main types of school in India: government schools provide free education and are funded and managed by the government; private-aided schools are

[14] See Appendix B.6.

mostly funded by the government and do not charge a fee, but are privately managed; and private-unaided schools, which may or may not be recognised by the government, charge a fee and are privately managed and funded (Kingdon, 2007). Only children enrolled at the first two types of school are eligible to receive a MDM. Within this age group and these schools, the scheme is universal.

Previous studies of the MDMS have provided some insight into the background of eligible children, including household occupation, caste, landholding size and income (Afridi, 2011; Garg and Mandal, 2013; Jain and Shah, 2005; Si and Sharma, 2008). These studies demonstrate the benefits of the MDMS for poor and disadvantaged groups; however, they fail to present a comprehensive or contemporary analysis of who is entitled to receive the meal and, beyond calories, what their food-based needs are. Moreover, they fail to adequately consider exclusion from the scheme. In Chapter 5, I do just this.

Beyond targeting, inclusion may also be determined by conditions; to receive some form of benefit, one must fulfil certain conditions. In recent years, conditional cash transfers, when the receipt of cash is conditional on some form of human capital investment such as education or health care (Rawlings and Rubio, 2005) have been increasingly used in developing countries, especially in Latin America. The attachment of conditions to social protection categorises people further still, into the deserving and underserving poor. Conditionality in SFPs takes a slightly different form to cash transfers, as the receipt of a meal is conditional on school attendance. Unenrolled or dropout children are not covered by SFPs, yet typically come from food insecure households and thus have a need for increased access to food (Bundy *et al*., 2009; HLPE, 2012). Bundy *et al*. (2009) suggested that to reach these groups either school-feeding should be expanded or alternative social protection schemes should be used. Bonnerjee and Koeher (2010) and Devereux (2015) have noted that the MDMS excludes out-of-school children; however, the nature, extent and consequences of such exclusion has not been empirically examined. The early draft of the NFSA allowed for any child under the age of 14 to be fed regardless of school attendance; however, this provision was removed before the Bill became an Act (Aggarwal and Mander, 2013). In Chapter 5, I therefore explore the impacts of conditionality.

Underlying the choice of targeting and conditionality, is tension between economic and social justice perspectives and the larger ethical question as to whether targeting should occur (Devereux, 2016). As Devereux (2016) outlines, there are two broad arguments for targeting. The first is pragmatic; that when there is a finite budget, targeting must occur. The second argument is ideological; targeting is necessary to transfer resources to those who need it. Opponents of targeting however emphasise the costs of targeting and the problems associated with dividing a population into the eligible and ineligible, including the arbitrariness of such divisions and the resulting stigma (*ibid*). Stigma has been shown to affect the use of SFPs, for example in the US (Poppendieck, 2010) and South Africa (van der Beerg *et*

al., 2010) and has been found to affect the use of social protection schemes more generally (see Devereux *et al*., 2015).

Others have questioned the act of dividing the population for biopolitical purposes. The division of the Indian population into those above and below a poverty line by the state is a prime example. As is discussed further in Section 2.5.2, Gupta (2012) takes issue with the categorisation of the Indian population into those above and below the poverty line. Fernandez (2010) describes this categorisation as a political technology, through which the 'governmental apparatus recasts a political problem as a scientific or technical problem' (417). Applying this to the MDMS, by dividing children into those eligible and ineligible, scholars and officials interested in the MDMS concentrate only on the eligible. In doing so, the wider patterns of social exclusion which may lead to children not enrolling in or attending school are ignored. Instead, the focus shifts to the technical question of supplying meals. Consequently, in Chapters 4 and 5, I examine categorisation in the MDMS.

There is an evident tension between targeting and conditionality and rights. On the one hand, governments recognise that people have human rights including to social protection and the right to food. On the other, governments deprive people of this right if they do not fall into eligible groups or if they fail to meet certain conditions (Freeland, 2007). If human rights are universal and the state is a duty-bearer, then logically there are no undeserving poor. Thus, opponents of targeting and proponents of the right to food may argue for universal schemes. In the drafting of India's NFSA, some (e.g. Himanshu, 2011; Jha and Acharya, 2013; Swaminathan, 2008) called for a universal PDS system, arguing that targeting is ineffective and that the exclusion of groups such as non-citizens is contrary to the right to food (Mander, 2015). Opponents argued that a universal scheme would be financially unfeasible and that there is no justification for feeding non-citizens or the well-fed (*ibid*). In the context of the MDMS, the idea of a universal system is complicated by the scheme being delivered through schools; universalism undermines the potential impact of the scheme on enrolment. In Chapter 5 and Chapter 9, I explore this tension between targeting, conditionality and rights in the MDMS.

2.4.2 The Politics of Needs

For targeting and conditionality to occur, a decision must be made as to who is entitled. A decision as to what the entitled are entitled to must also be made. Fraser's (1987; 1989) work on the politics of needs interpretation is useful for considering these decisions. Fraser (1987) characterised the US-welfare system as a 'juridical-administrative-therapeutic state apparatus' (113). The juridical element of this system gives or denies rights, the administrative element means claimants must prove they meet administratively defined needs and the therapeutic dimension focusses on closing the 'gaps between their culturally shaped lived experience and their administratively defined situation by bringing the

former into line with the latter' (115). In consequence, 'political issues concerning the interpretation of people's needs' are turned 'into legal, administrative and/or therapeutic matters'. The system therefore 'executes political policy in a way which appears nonpolitical and tends to be depoliticizing' (113).

Fraser (1989) argues that identifying general or 'thin' needs is simple. For example, to live people need shelter and food and the government has a responsibility to provide for this need. However, unpicking what is required to meet these needs is far more complex. For example, as Fraser writes in the context of homelessness 'does it go without saying that policy designed to deal with homelessness must not challenge the basic ownership and investment structure of urban real estate?' (1989: 294). Fraser consequently argues thin theories of needs do not shed light on contemporary needs politics and consequently deflect attention away from political questions. Firstly, 'they take the interpretation of people's needs as simple and unproblematic' (294). Secondly, they assume who interprets needs is unproblematic. Third, they assume that the 'socially authorized forms of public discourse available for interpreting people's needs are adequate and fair' (294). Finally, these theories do not focalise the 'social and institutional logic of processes of need interpretation (294).

Although Fraser focussed on the US, the discussion of needs is useful for thinking about rights and the right to food. The definition of a right to food goes beyond a 'thin' need for food, to emphasise the need for quantitatively and qualitatively adequate food, that meets dietary needs, is culturally acceptable and safe (Section 2.3.3). However, each of these requires further definition. For example, one must ask 'in order to have food that meets dietary needs, what is required?'. Defining what constitutes the fulfilment of a right to food can be difficult. Drèze noted that 'freedom from hunger', can be interpreted as having two square meals a day, meeting calorie norms or not experiencing malnutrition. Even if one interprets dietary needs as standardised recommended allowances such as those put forward by the Indian National Institute of Nutrition (NIN) (2011), dietary needs still vary depending on age, gender and activity level as well as health. Beyond this, defining the qualitative dimensions of the right to food, such as acceptability and preference is not only difficult but raises important questions as to who defines these needs and standards. Thus, behind the seemingly simplistic recognition of the need to realise the right to food, are political decisions about needs; who has what needs and how they can be met. In this study, I therefore consider the politics of needs in the MDMS.

2.4.3 The Capability Approach

Sen (2009) puts forward a 'realization-focussed understanding of justice' (10), which moves beyond a sole focus on the establishment of institutions and rules to consider realisations and accomplishments. Sen's approach is useful in considering social protection, as it encourages one to move beyond a focus on theoretical eligibility and the intended inclusion to consider actual inclusion. Moreover, it

encourages a focus on the realisation of rights. The capability approach provides a means of analysing social protection through a realisation-focussed approach.

The capability approach, advanced by Amartya Sen in the 1980s, moves beyond viewing development as the achievement of a minimum level of income, calories or standard of living, to view the goal of development as the capability to 'accomplish what we value' (Sen, 1992: 31). As Sen writes 'living may be seen as consisting of a set of interrelated 'functionings', consisting of beings and doings' (39). These 'valuable' functionings' (Alkire, 2005) are the things that a person values doing or being and might range from being adequately nourished to being happy. 'Achieved functionings' are the functionings that a person has 'successfully pursued and realized' (*ibid*: 120). If only achieved functionings were considered, choice would be ignored. Thus, Sen introduces capabilities, 'a person or group's freedom to promote or achieve valuable functionings' (*ibid*: 121). Capabilities are the 'various combinations of functionings (beings and doings) that the person can achieve' (*ibid*: 40). The focus of the capability approach is thus 'on the freedom that a person actually has to do this or be that – things that he or she may value doing or being' (Sen, 2009: 231-231). Central to this is agency (Walker, 2005). In this approach, development is perceived as the removal of the obstacles to 'the substantive freedom to achieve alternative functioning combinations (or, less formally put, the freedom to achieve various lifestyles)' (Sen, 1999: 75).

The capability approach distinguishes between means (goods and services) and functionings and capabilities (Robeyns, 2005). Goods lead to functionings due to conversion factors of which there are three broad types: personal, social and environmental (*ibid*). The relationship between means, capabilities and functionings is shown in Figure 2.2.

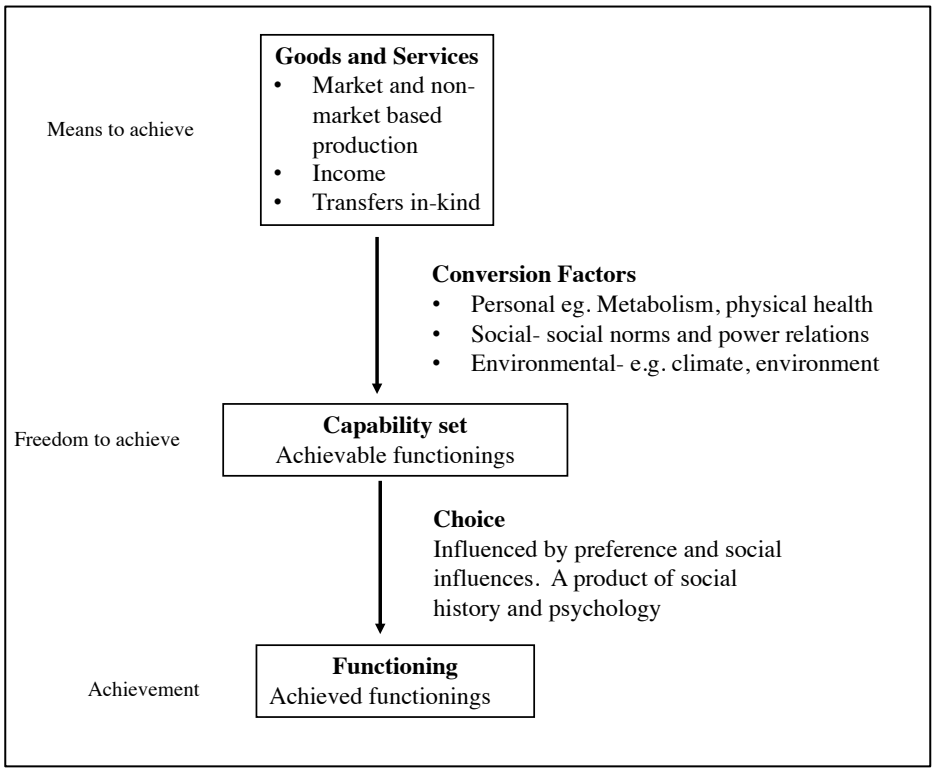


Figure 2.2: The conversion of goods and services (adapted from Robeyns, 2005)

Given its breadth, some have questioned the usefulness of the capability approach (e.g. Rawls, 1999; Sugden, 1993). Others, notably Nussbaum (2003; 2011) have criticised Sen for not specifying a list of core capabilities. However, it must be noted that Sen is not reluctant to specify important capabilities, of which the capability to be well-nourished is one (Sen 1992; 2005). Of particular relevance here, Nussbaum and Sen also differ in the emphasis they place on the government (Robeyns, 2005). Nussbaum (2003; 2011) focusses on core capabilities as demands to be placed on the government. This emphasis on the government is evident in Nussbaum's more recent use of Wolff and de Shalit's (2007) work. Wolff and de Shalit's (2007) analysis of disadvantage introduces new terms to the capability approach (Nussbaum, 2011). First, through their concept of 'secure functionings', termed 'capability security' by Nussbaum (2011), they introduce a temporal consideration into the provision of capabilities, arguing that public policy should provide secure capabilities that can be relied on in the future (*ibid*). Second, they introduce the concepts of 'fertile functionings' and 'corrosive disadvantages'. The former are 'those functionings the securing of which is likely to secure further functionings' and the latter are a 'disadvantage the presence of which yields further disadvantages' (10). Wolf and de Shalit argue that a good way of governments taking action that moves towards equality is by focussing on the removal of corrosive disadvantages and the advancements of fertile functionings. Nussbaum (2011) argued that legislative action should promote fertile functionings and dismantle corrosive disadvantages. Yet, as Fennell (2013) argued, it is unclear how governments and public

policies would overcome problems such as discrimination and change identities to enable the achievement of the capabilities that Nussbaum outlines. Thus, the nature of capabilities, functionings and disadvantages are wider in scope than the government, which reflects Sen's broader approach to capabilities. Together, this literature raises two important questions. Firstly, how is the capacity of the state to realise rights affected by others? Secondly, is the language of 'fertile functionings' and 'corrosive disadvantages' useful and valuable to an approach already characterised by awkward terminology? Both issues are considered in Chapters 9 and 10.

Here, it is necessary to consider the applicability of the capability approach to three further issues; to hunger and malnutrition, to human rights and to children.

Food and Nutrition

The capability approach focuses on people's lives rather than just the issue of food (Pritchard *et al.*, 2014). As Crocker (2008) summarised, Drèze and Sen (1989) put forward four reasons for moving beyond entitlements to the capability approach. First, by focussing on the functioning of being well-nourished one can account for individual variability. Second, the capability approach allows consideration of social variability, by recognising that social factors such as taste and beliefs can influence the conversion of food. Third, the approach highlights the multi-dimensional approach to achieving the end of being well-nourished, that requires more than the provision of food. Finally, the capability approach helps us perceive nutritional well-being as connected to other aspects of well-being, such as being able to learn. Overall, being well-nourished or, as Burchi and de Muro (2016) term it 'the capacity to be food secure', depends on more than the provision of a good in this case food, but also on how this food is converted to nutritional functioning. As goods and services may include transfers in kind (Robeyns, 2003), following the capability approach, one can ask how the MDM is transferred to capabilities and the functionings of being well-nourished and food secure. Using this framework, one might also consider how a right can be claimed and realised. These ideas are explored further in Chapter 9.

Seeing food security through the capability approach also has implications for policy. In the capability approach, policies are examined according to their impact on people's capabilities, for example, are people healthy and do they have the capabilities to be so, such as clean drinking water and access to health care (Robeyns, 2005). Following this, Drèze and Sen (1989) assert that public policy should not focus solely on the provision of a certain amount of food. Instead, the focus of policy should be 'to make it possible for all to have the capability to avoid undernourishment and escape deprivations associated with hunger' (13). Crocker (2008) therefore argues that: 'Instead of identifying hungry people simply by a lack of food intake and mechanically monitoring individuals or dispensing food to them according to nutritional requirements, the focus should be on nutritional functioning' (271). This

relates back to the earlier discussion of the politics of needs and raises the question of how narrowly needs should be defined; an issue explored in Chapter 4.

Human Rights and Capabilities

Human rights can be seen as 'rights to certain specific freedoms' (Sen, 2005: 152). Duty-bearers are obligated to respect, protect and fulfil (or expand) these freedoms (Osmani, 2005; Sen, 2005). However, Sen (2009) distinguishes between the opportunity and process aspects of freedom. The opportunity aspect is the 'real opportunities we have of achieving things... no matter what the process is' (Sen, 2002: 506). The process aspect is the free decision made by a person, which includes the autonomy of decisions that are made and the 'immunity from interference by others' (*ibid*: 508). Sen argues the capability approach is useful for the opportunity aspect not the process aspect of freedom 'since capabilities are characteristics of individual advantages, and they fall short of telling us enough about the fairness or equity of the processes involved, or about the freedom of citizens to invoke and utilise procedures that are equitable' (2005: 156).

This thinking can be extended to Jonsson's work on RBAs. Jonsson differentiates between the outcome and the process of human rights (Section 2.3.1). The capabilities approach can inform understanding of whether rights are realised and outcomes are achieved, but it provides no insight into rights-based processes. Moreover, although the approach acknowledges the importance of 'social opportunity' in 'human agency and freedom' and thus does not see 'individuals and their opportunities in isolated terms' (Drèze and Sen, 2002: 6), additional approaches are needed to uncover and examine the wider structures which affect agency and capabilities. Consequently, here I consider the determinants of capabilities.

Pritchard *et al*. (2014) go beyond conceptual links between human rights and capabilities to discuss how capabilities can be used to examine RBAs. The focus on real, substantive freedoms in the capability approach means that rights are not considered as abstract notions but instead the focus is on the 'enacted reality of how rights are delivered to individuals' (Pritchard *et al*., 2014: 8). The effect of this is to 'assess rights-based initiatives by looking outwards from the lived realities of people, so that analytical efforts are anchored to their substantiation, not their promise' (*ibid*: 8). In this research, I do this by examining the realisation of rights in the MDMS.

Children

Considering capabilities in the MDMS is complicated by the fact that children are the rights-holders. The capabilities of children are affected by others, complicating the use of agency and freedom (Saito, 2003). Parents and teachers may make decisions that affect the ability of children to convert capabilities into functionings and the capabilities and functionings of parents can affect those of the child, such as

the link between maternal and child malnutrition (see Appendix A) (Ballet *et al.*, 2011). Thus, Saito (2003) questions whether the approach can be applied to children. In response, Sen emphasises that for children freedom is temporal. For example, inoculation in childhood may increase freedom in the future by preventing ill-health (*ibid*). Indeed, the MDMS is capable of enhancing future freedom; by enhancing educational performance, health and nutrition, the scheme can act as a 'fertile functioning'. Yet, here I focus on the present rather than future outcomes. I consider how children's capabilities are affected by others and consider the extent to which children have agency.

Use

I agree with Pritchard *et al*. (2014) that although the language of the capability approach may seem at odds with the practical question of feeding India, it is useful in examining food insecurity and policy and social protection schemes more broadly. Although most of the literature on the capability approach is abstract in nature, the possibility of applying the approach to practical matters is evident. For example, de Herdt (2017) somewhat successfully uses the approach to uncover that in a food relief programme in Kinshasa, shame played a key role in determining why many that could make use of the scheme did not. Still, considerably more research is needed to consider how the approach might be operationalised. Following this, here I draw on the capability approach to unpick how rights are or could be realised through public policy. I will consider how the 'good' that is the MDMS is (or is not) converted into the functionings of being well-nourished and, more broadly, food secure. At the same time, in Chapter 10 I consider what the analysis of the MDMS might add to the capabilities approach and the usefulness of the capability approach in analysing rights-based policy.

2.5 Duty-bearers

2.5.1 Perfect and Imperfect Obligations

The previous discussions of rights and RBAs indicate that there may be different types of duty-bearers, those with formalised duties and those with more abstract duties. One can distinguish between those that have perfect obligations, 'a specific duty of a particular agent for the actual realization of that right' (Sen 2000: 495) and those that have imperfect obligations which are not clearly defined, but instead rest on the idea that if one can prevent the violation of a human right, then one has reason to do so (Sen, 2009). Other obligations and concerns may prevent action, but they do not remove the reason. The nature of obligations in the MDMS and the degree to which they are specified is explored in Chapter 4. In the rest of this section, I consider the literature on three groups of duty-bearers: the state, NGOs and the community.

2.5.2 The State

In many 'developed' countries, state-welfare has retreated, a product of 'roll-back neoliberalism' (Peck and Tickell, 2002). Consequently, charitable provisioning in the form of food banks and pantries has increased. At the same time, renewed emphasis has been placed on the state as the primary duty-bearer of the right to food. Asserting that the state is a duty-bearer, however, presents the state as a unified, single entity. This portrayal is at odds with scholarship on the state, which recognises that the state is not a well-defined, single actor separated from society (Fuller and Harriss, 2001; Williams *et al*., 2011). Scholarship on the state in India and more generally has shown that the state is both imagined and has impacts on the everyday lives of people (*ibid*). In India, increasing attention has been paid to the 'everyday state', meaning the state encountered by citizens at the grassroots level (Corbridge *et al*., 2005; Fuller and Benei, 2001). The presence and absence of the state particularly impact the everyday lives of the most marginalised (Williams *et al*., 2011).

The everyday interactions between citizens and the 'state' are a core part of social protection schemes as people encounter the 'state' as they seek and receive entitlements. The interaction between state and society in the distribution of services has been particularly explored by Gupta (2012) in *Red Tape*. As detailed in Section 1.1, Gupta (2012) asks why hunger, malnutrition and poverty persist in India. He argues that 'the poor are killed despite their inclusion in projects of national sovereignty and despite their centrality to democratic politics and state legitimacy' (6). Drawing on ethnographic research including on the ICDS scheme in Uttar Pradesh, Gupta argues against perceiving India's development programs as well-designed but poorly implemented, believing doing so would place the blame solely on low-level officials 'who, for reasons ranging from corruption to poor training and education, are deemed incapable of implementing the wonderful programs thought up by metropolitan experts' (2012: 25). Instead, the nature of bureaucracy produces arbitrary outcomes. Gupta (2012: 14) writes:

> In the midst of this chaos, the allegedly rational apparatus of the state makes crucial decisions such as whether a poor person should receive what may be lifesaving aid. However, the procedural bases for these decisions were far from rational.

Gupta argues that 'bureaucratic action repeatedly and systematically produces arbitrary outcomes in its provision of care. While indifference does indeed play an important role in this story, the indifference to arbitrary outcomes is central' (6). Gupta uses the example of a pension camp to illustrate this point. At the camp, doctors guessed applicants' ages and a lack of information for example about landownership meant eligibility was largely determined by guesswork; arbitrary decisions were made. These decisions have no consequences for the officials making them, but can have grave consequences for those seeking a service. Due to these arbitrary decisions, different outcomes occur 'for clients who

are in similar structural locations... who have very similar endowments of economic, social, educational, and cultural capital' (24). Overall, Gupta argues that 'structural violence is enacted through the everyday practices of bureaucracies, and one therefore needs to look closely at those everyday practices in order to understand why violence coexists with care' (33). Gupta terms this violence as, following Galtung's (1969) definition, people are prevented from achieving their capabilities and structural as no single actor is to blame.

Gupta also draws on the concept of biopower to interpret state action. Gupta concludes that both the of ICDS and *Mahila Samakhya* 'were heavily invested in the biopolitical goal of mapping the population so that it could be better served, managed, and controlled' (272). In contrast to the sovereign's right to 'take life or let live', governments have the power to 'make' live and 'let' die'' (Foucault, 1976 in Foucault 1997: 241). The object of government is 'the welfare of the population, the improvement of its condition, the increase of its wealth, longevity, health, etc.' (Foucault, 1991; 100). To do so, data on the population is required. In the eighteenth century, birth rates and rates of reproduction, 'became biopolitics' first objects of knowledge and the targets it seek to control' (Foucault 1976: 243). In the ICDS programme examine in *Red Tape*, such mapping includes *anganwadi* workers recording the name and age of children and their nutritional status and the name and caste of their parents. Gupta (2012) also describes how statistics and the categories used to classify the population produce outcomes. Gupta argues that categorising the population into those below and above the poverty line, 'converts the many facts of someone's material deprivations into a category that can be enumerated and measured' (156). Such categories become part of vocabulary, and thus researchers focus on the accuracy of data collection, 'rather than on a sustained interrogation of the category itself as a form of state simplification (Scott 1998) or a thin description of a complex social reality (Broch-Due 1995)' (Gupta, 2012: 66). Gupta also argues, notably with little evidence, that statistics on poverty have been accepted as normal.

Although insightful, Gupta's *Red Tape* is not without its flaws. Published in 2012, it is based largely on research from the early 1990s and thus does not reflect the significant changes to economic policy in India since. Harriss and Jeffrey (2013) offer a strong critique of Gupta's work. They correctly argue that Gupta only partially explains the answer to the 'puzzle' of why hunger, malnutrition and poverty persist in India. Persistent poverty, hunger and malnutrition cannot solely be the result of arbitrary decisions at the low-levels of bureaucracy; other factors, notably economic policy and politics and existing patterns of power and privilege must also be considered. Harriss and Jeffrey also argue that Gupta's use of the concept of structural violence 'is of no analytical value; it avoids questions of moral responsibility; and it is politically disempowering' (513). Whether 'structural violence' is applicable to the MDMS is discussed in Chapter 9. Finally, of the most relevance here, Harriss and Jeffrey argue that Gupta pays insufficient attention to the actions of officials, such as absenteeism and the fact that officials may be responsible for a large number of programmes. In contrast to Gupta, Harriss and Jeffrey

argue ‘bureaucratic functioning is by no means as arbitrary and confused as Gupta suggests: rather, it systematically reflects caste, class and gender privileges’ (519).

In Chapter 9, I will contribute to this debate by considering the extent to which the actions of bureaucrats in the MDMS are arbitrary and whether the MDMS is characterised by arbitrary outcomes. To do so, it is first necessary to consider the literature on street-level bureaucrats; a body of literature surprisingly absent from Gupta (2012).

2.5.3 Street-Level bureaucracy

Writing about the US in 1980, Lipsky argued that policy is made by street-level bureaucrats, those ‘public service workers who interact directly with citizens in the course of their jobs, and who have substantial discretion in the execution of their work’ (2010: 3). Street-level bureaucrats include teachers, police, welfare departments and legal services. Lipsky (2010: 3) writes:

> Whether government policy is to deliver "goods"-such as welfare or public to confer status-such as "criminal" or "mentally ill"-the discretionary actions of public employees are the benefits and sanctions of government programs or determine access to government rights and benefits.

Lipsky argued that these actors ‘make policy’ due to two characteristics. First, these bureaucrats have high levels of discretion; they can determine ‘the nature, amount, and quality of benefits and sanctions provided by their agencies’ (2010: 13). Second, street-level bureaucrats have ‘relative autonomy from organisational authority’ (13) and may not share the goals and perspectives of the agency for which they work. There are also common conditions in which street-level bureaucrats work: resources are inadequate relative to the task; the demand for services increases to meet supply; the goals of agencies are often ambiguous; performance related to goal achievement is difficult or impossible to measure; and clients are typically non-voluntary (2010: 27-28). Consequently, street-level bureaucrats must employ coping mechanisms; ‘the decisions of street-level bureaucrats, the routines they establish, and the devices they invent to cope with uncertainties and work pressures, effectively *become* the public policies they carry out’ (2010: xiii).

Lipsky’s work introduced a new way of examining public policy, which focussed not on policy-makers but on the reality of those delivering policy (Brodkin, 2012). Lipksy’s work has consequently formed the basis of much scholarly discussion (see the reviews by Brodkin, 2012; Maynard-Mooney and Portillo, 2011 and Smith, 2012). This literature has shown that multiple factors can determine the decisions made by street-level bureaucrats, including their personal views, demographic characteristics and organisational factors such as the type of tasks performed the degree of authority given to street-

level bureaucrats (see Hupe and Buffat, 2014 for a review).

Central to understanding street-level bureaucrats and their actions is appreciation of both their agency and the structures in which they work. As Lipsky (2010: 221) writes:

> Street-level bureaucrats may indeed make policy in the sense that their separate discretionary and sanctioned behaviors add up to patterned agency behavior overall. But they do so only in the context of broad policy structure of which their decisions are a part.

Maynard-Moody and Portillo (2011) suggest that there is the need to go beyond discretion which is commonly explored in the street-level bureaucrat literature, to develop a 'robust concept of "agency"' (21):

> Agency, or the irreducible ability to alter social encounters, is a constituent element of social structure. Therefore, appreciating street-level workers' understandings of policy, citizens, clients, and their roles—their work schemas—and appreciating when and how they interpret and choose to respond to.

Maynard-Moody and Musheno (2012) also discuss agency. Drawing on Sewell (1992) and Giddens (1979), they emphasise that agency does not exist separately from structure. Rather, structure shapes and gives meaning to agency. Street-level bureaucrats exist in the context of 'laws, budgets, rules, practices, positions, and authority', 'the resources that make up, with schemas, the nature of structure and give meaning to human agency' (*ibid:* 520). In Chapters 7 and 9, I consider structure, agency and duty-bearers in the MDMS.

Implicit in the street-level bureaucrat literature is the recognition that context matters; yet the influence of context is underexplored (Hupe and Buffat, 2014). Hupe and Buffat consequently introduce the concept of a 'public service gap'; when what is being asked of public officials (the demand) is greater than the resources allocated to them (the supply). What is being demanded from public officials on the 'demand-side' is affected by formal rules, norms and public expectations. What Hupe and Buffat term 'enablements' enable public officials to supply what is being demanded from them on the 'supply side'. Enablements may include training, education, time and financial resources. These factors can vary over time, causing public officials to have to 'do more with less', 'do more with the same' or 'do the same with less'. In this thesis, I use Hupe and Buffat's distinction between demands and enablements to consider the implementation of the MDMS.

Despite its enduring popularity, the definition of 'street-level bureaucrats' is imprecise (Kosar and Schachter, 2011). The term 'street-level bureaucrat' can be used to refer to every frontline worker, or, as Lipsky originally intended, to refer to those who can exercise discretion and cannot do their job

exactly as they should due to the work structure. In this second approach, a teacher may be a street-level bureaucrat, but is not necessarily one by virtue of being a teacher. Furthermore, the concept has been under-utilised in the developing world; the majority of studies on street-level bureaucracy focus on the US and social work. Scholars may use the term is discussion of public policy as Berenschot (2010), Joshi (1999) and Mathur (2012) do in India, yet, the applicability of the term in the Indian context remains under-explored. The absence of any discussion of street-level bureaucracy within Gupta's *Red Tape* is perhaps the most surprising. Thus, in my analysis of the MDMS, I draw on the concept of street-level bureaucrats. I consider whether the term applies to those actors responsible for implementing the MDMS and I draw on the concept to explore the actions of the duty-bearers in the scheme and the influence of agency and structure.

Since Lipksy first published his seminal work, public policy delivery has changed considerably (Brodkin, 2012). Increasingly, governments have relied on private and/or non-profit organisations to deliver services, rendering the workers in such organisations 'new street-level bureaucrats' (Smith, 2012). In the following section, I consider this trend in the context of the rise of public-private partnerships (PPPs). In Chapter 7, I then consider whether those non-state actors responsible for implementing the MDMS can be considered 'street-level bureaucrats'.

2.5.4 Public Private Partnerships

There has been increasing interest in PPPs since the late 1990s (Osei-Kyei and Chan, 2015), as states have engaged with private actors under 'roll-out neoliberalism' (Peck and Tickell, 2002). PPPs are increasingly used to provide services in the developing world (see Bennett, 1998; Fennell, 2007; Fizbein & Lowden, 1999; Widdus, 2001). In India, the GOI advocated the use of PPPs in the Twelfth Five-Year Plan (2012-2017) (Planning Commission, 2013) including in the MDMS.

PPPs can broadly be defined as partnerships between the government and the private sector or anything outside of the public sector (Miraftab, 2004). PPPs involve two or more parties one of which is a public body. These parties have an enduring relationship, contribute resources, share responsibility for outcomes, and have a contract to enable continuity (Grimsey and Lewis, 2005: 13). PPPs can be created for many reasons, yet are often justified on the basis of one assumption and one presumption; the assumption that governments do not have the expertise and knowledge to fulfil responsibilities and the presumption that governments can access this expertise, assess cost-effectiveness and that private organisations are willing to partner governments (Forrer *et al.,* 2010). This view sees PPPs as organisational and financial arrangements (Hodge and Greve, 2007). An alternative view of PPPs however, is that they are a 'language game' (*ibid*), in which 'partnership' may be used instead of 'privatisation' and 'contracting out', to obscure meaning and to suit political objectives (Hodge and Greve, 2010). Linder (1999) argued there were 'multiple grammars' to PPPs, and outlined six uses of

the term 'public-private partnership' which are not mutually exclusive: as management reform, a fix for problems, as moral regeneration, as risk-shifting, as restructuring public service and as power sharing.

Although the plurality of PPPs is recognised in academic literature, discussions of PPPs are often imprecise in their use of the term 'public-private partnership', introducing ambiguities as to the role and expectations of each partner (Miraftab, 2004). Moreover, one must consider the responsibilities of each actor within the partnership and the power relations between them. The rise of PPPs also raises the question of accountability. As Grimsey and Lewis (2005) write: 'The fact that one of the participants in a PPP is a public body creates a need for the inclusion of mechanisms of accountability quite different from those that would exist if all the participants were private' (13). Yet, at the same time the reason for a partnership may be to reduce the bureaucratic processes associated with government (*ibid*).

PPPs are used in some SFPs and India is often used to illustrate the potential of PPPs in food-based safety nets. PPPs in the MDMS take the form of partnerships between the government (national and state) and NGOs. They therefore differ from typical PPPs which involve the private sector. Nevertheless, there are parallels between the rationale for the involvement of the private sector and NGOs. PPPs in the MDMS are advocated on the basis that they can provide a better service than the government can; reflecting the use of PPPs for problem conversion identified by Linder (1999). Bundy *et al*. (2009) cite centralised kitchens in the MDMS as a successful case of the use of the private sector in SFPs, noting that the scheme costs just US$28 per child per year. At first glance, this seems cheap, particularly as the average cost of as SFP is US$40 per student per year (Galloway *et al*., 2009). However, when the report by Bundy *et al*. was written, decentralised kitchens were providing the food at a cost of approximately INR 570 for primary students and INR 860 for upper primary students (GOI, 2016a), equivalent to approximately US$11 and US$16. The cost of the MDM under the decentralised model was therefore considerably less than US$28.

Other commentators have also noted the successful use of PPPs in the MDMS. Drake *et al*. (2016: 273) stated PPPs have 'proved instrumental in improving the quality and reach of the program' and that 'the involvement of a number of bodies such as the Akshaya Patra Foundation[15] has resulted in better performance and promotion of community participation through fundraising and volunteering'. The Government (GOI, 2016b), media reports (Pain, 2014; Singh, 2015) and the NGOs involved (Akshaya Patra, 2016) also consider PPPs in the MDMS to have been a success. There is, however, a distinct lack of evidence to support this narrative of success; only two studies have rigorously assessed the involvement of centralised kitchens in the MDMS. Shankar and Natasha (2010) compared the

[15] See Section 7.6.1 for further discussion.

centralised model in Delhi with the decentralised model in Ahmedabad, Gujarat. They found that the decentralised model was infrequently monitored and affected by corruption, whilst the involvement of centralised kitchens lowered employment opportunities for women, decreased transparency and led to food spoilage. They found hygiene and monitoring to be problems in both models. Shukla (2014) found the food provided by NGOs in Delhi was both low in quality and quantity.

Reflecting the wider trend in discussions of PPPs, the term 'PPP' in the MDMS is used without clarity. Previous studies have not examined which actors are involved in these partnerships, the division of responsibilities between them and the power dynamics. To begin to address these gaps, in this thesis I examine the NGOs involved in the MDMS, including their objectives, responsibilities and outcomes of their involvement. I also consider the extent to which these partnerships affect street-level interactions.

2.5.5 The Community

Whilst the state may be the primary duty-bearer for the right to food, other actors also have a responsibility. Indeed, Comment 12 asserts that all members of society have responsibility for the realisation of the right to adequate food. Yet, what these responsibilities or 'imperfect obligations' might be remain unexplored. State action to realise the right to food and indeed any right may be limited. Drèze (2004a) considered the case of a hypothetical girl who is undernourished due to uneven and male-biased intra-household food distribution. Although the state has some responsibility to address the underlying discrimination, the family is also responsible, raising the question 'where do the duties of the state start and those of the individual, family and local community end? (Mander, 2012: 15). Of relevance to SFPs including the MDMS, the literature on children and capabilities discussed in Section 2.4.3 highlights that children's capabilities are affected by the actions of others, namely their parents, raising the question of what duties parents may have in ensuring that their children can realise their right to food. Thus, here I consider the nature and extent of the roles of individuals, families and the local community in the MDMS.

Since the 1980s, increasing emphasis within development has been placed on participation, which 'essentially concerns the exercise of popular agency in relation to development' (Hickey and Mohan, 2004: 3). In the 1990s, participatory approaches were criticised (e.g. Cleaver, 1999; Cooke and Kothari, 2001) for focussing on the local rather than wider structures and injustices, for failing to consider power and how empowerment might occur, for failing to sufficiently consider structure and agency and for treating participation as technical rather than political (see Hickey and Mohan, 2005). The MDMS is not grounded in the theory of participatory development, yet literature on participatory development prompts a consideration of *how* participation might occur in the context of wider structures and power

relations. Thus, in Chapter 4 I consider the extent to which the community are expected to participate in the MDMS and in Chapter 8 I explore the degree to which they do.

2.5.6 Capacity

As Jonsson (2003; 2005) recognised, duty-bearers must have the capacity to fulfil their duties. Capacity is not, however, a self-explanatory term and thus what is meant by the term requires further exploration. Since the 1980s, development organisations have increasingly used the term 'capacity-development', in which capacity is typically defined broadly as the ability to identify and solve development problems (Jonsson, 2005). Beyond this vague definition, capacity is rarely defined. For example, Brinkerhoff (2001; 2004) repeatedly refers to capacity in discussions of accountability, both institutional capacity and the capacity of citizens for collection action without sufficient elaboration of what such capacity entails. Morgan (2006) and Brinkerhoff and Morgan (2009) have attempted to further characterise capacity by suggesting that the capacity of organisations and their networks is about five core capabilities; to commit and engage; carry out technical, service delivery, and logistical tasks; to relate and attract support; adapt and self-renew and to balance diversity and coherence. However, although Morgan (2006) acknowledge the link to Sen's work on capabilities, in neither Morgan (2006) or Brinkerhoff and Morgan (2009) is the use of the term 'capabilities' explained. Moreover, their definition of capacity is of little use when duty-bearers are not coherent organisations.

Far more applicable here in this analysis of a rights-based policy, is Jonsson's (2003: 2005) work on RBAs. Jonsson writes 'all individuals have both rights and duties, except for very young children (who have rights but no duties). All individuals, therefore, need capacity to both claim their rights and fulfil their duties' (31). Jonsson argues that five things are necessary for the development of community capacity: responsibility, authority, access to and control of resources, communication capability and the capability for rational decision-making and learning. These are summarised in Table 2.7. Whilst useful, the HRBAP is limited by the failure to distinguish between agency and structure.

Table 2.7: Summary of Jonsson's (2005: 31-32) conceptualisation of capacity

Aspect of capacity	Jonsson's definition
Responsibility	'This refers to the acknowledgement by an individual (or organisation) that he/she *should* do something about a specific problem. It means acceptance and internalisation of a duty, and is often justified in legal or moral terms. Some individuals, such as "activists," accept responsibilities far beyond what may be expected. They are often motivated by moral imperatives and provide leadership in movements.'
Authority	This refers to the legitimacy of an action; when an individual or group feels or knows that they *may* take action, that it is permissible to take action. Laws, formal and informal norms and rules, tradition, and culture largely determine what is or is not permissible. The structure of authority in a society reflects its power relations.
Access and Control of Resources	'If an individual accepts that he/she *should* do something and *may* do it, it may still be impossible to act because the person lacks resources. Capacity must therefore also mean that the person or organisation is in a position to, or *can*, act.' Access and control of resources has three dimensions: '1) *Human Resources*: Skills, motivation, will power, knowledge, experience, time, commitment, etc. 2) *Economic Resources*: Land, natural resources, means of production (such as tools or equipment), technology, income, credit, etc. (3) *Organisational Resources*: Formal and non-formal organisations such as family, extended family, clan, CBOs, NGOs, administrative structures, institutions, etc. Organisational resources include formal and informal rules that structure certain patterns of interaction.'
Communication Capability	**'**The capability to communicate and to access information and communication systems is crucial for individuals and organisations in carrying out their responsibilities, and for "connecting" various key actors in the social fabric into functional networks able to address critical development issues'.
Capability for Rational Decision-making and Learning	'Rational decision-making requires evidence-based assessment and a logical analysis of the causes of a problem. Actions should be based on decisions informed by the analysis. After each action has been taken, a re-assessment of the result and impact will lead to improved analysis and better action in the next round. Such interactive learning-by-doing relies heavily on the capability to communicate.

Although useful, Jonsson's approach provides little insight into the capacity of duty-bearers beyond the community. In light of the limitations in these approaches to capacity, in this thesis I consider the role of capacity in shaping the implementation of the MDMS and unpick what determines the capacity of duty-bearers to fulfil their duties.

2.6 Accountability Mechanisms

2.6.1 Conceptualising accountability

Initially, accountability was narrowly conceptualised as holding actors to account. Mulgan terms this 'core accountability' which includes 'the right of the account-holder to investigate and scrutinise the actions of the agent by seeking information and explanations and the right to impose remedies and sanctions' (2003: 10). Over time, this conceptualisation has expanded to include responsibility, control and responsiveness (*ibid*).

Accountability has two components: agents of responsibility and accountability mechanisms. Agents of accountability can include, but are not limited to, the electorate, the judiciary, the public, the media and international institutions. Given this diversity, literature on accountability has focused on categorising these agents. As Schedler (1999: 23) wrote: 'we may easily drown in a sea of innumerable agents of accountability unless we drop some conceptual anchor'. One means of 'dropping an anchor' is to distinguish between the source of accountability; *internal* or *external*. Internal accountability is based on an established hierarchy or informal relationships within an agency (Romzek and Dubnick, 1987). External accountability derives from outside an agency, from established laws or informal power (*ibid*). Accountability can also be categorised by direction; *horizontal* or *vertical* (O'Donnell, 1998). Horizontal accountability involves holding someone of equal power to account and is typically intra-state, whereas vertical accountability is between actors of unequal power such as the electorate and representatives and is thus external (Peruzzotti and Smulovitz, 2006; Schedler, 1999). Accountability can also be described as *top-down/from above* from political elites, or *bottom-up/from 'below'* from civil society (Schedler, 1999).

A further means of categorising accountability is by *degree of control*. Romzek and Dubnick differentiated between a high degree of control 'to determine both the range and depth of actions' and a low degree (1987: 228). Romzek and Dubnick (1987) also differentiated between *bureaucratic, legal, professional* and *political* accountability. Bureaucratic accountability is between a superior and a subordinate, legal accountability is between a lawmaker and an official, professional accountability is between an expert and a layperson and political accountability is between a constituent and a

representative (*ibid*: 230). Romzek and Dubnick proposed a matrix of accountability types by source and control (Figure 2.3).

		Source of agency control	
		Internal	**External**
Degree of control	**High**	Bureaucratic	Legal
	Low	Professional	Political

Figure 2.3: Types of accountability (from Romzek and Dubnick, 1987: 299)

Mulgan (2003) subsequently proposed four questions to comprehend accountability systems: Who are accountable? To whom*?* For what? and How*?* (23). Mulgan (2003) considered accountability to have three stages: initial reporting and investigating (information); justification and critical debate (discussion); and the imposition of remedies and sanctions (rectification). Mulgan emphasised the importance of sanctions, stating: 'Where institutions or officials are found to have been at fault, there must be some means of imposing remedies, by penalising the offenders and compensating the victims' (2003:9).

2.6.2 Accountability and Public Policy

The types of accountability described above often focus on holding the state to account, whether horizontally such as through agencies to control corruption or vertically by the electorate (Ackerman, 2004; O'Donnell 1998). Such public accountability can also be categorised as financial, performance or political/democratic accountability (Brinkerhoff, 2004). Society can also hold the government to account through other means. Paul (1992), one of the first to explore this form of accountability (Ackerman, 2004), presents a conceptual framework of public accountability based on Hirschman's (1970) work on exit and voice. There are two factors that influence public accountability: whether there are alternative suppliers of a public service to enable exit and whether there is the opportunity to exercise one's voice to influence the outcome of a service. Paul explores the different degrees of both exit and voice in different services, summarised in Figure 2.4.

Voice

Weak → Strong

Exit: Low → High

Exit	- High spatial barriers - Local monopoly	- Large economies of scale - High legal barriers to entry
Voice	- Low differentiability[16] of services - High income barriers - High legal/institutional barriers - High information barriers	- Low differentiability of services - Low income barriers - Low or moderate information barriers
Examples	- Rural primary education - Rural health	- Urban water supply - electricity
Exit	- Legal barriers to entry - Low economies of scale	- Low to moderate economies of scale
Voice	- High differentiability of services - High income barriers - High legal/institutional barriers - High information barriers	- High differentiability of services - Low income barriers - High product involvement
Examples	- Urban low income housing - Urban primary education (low income) - Welfare/ nutrition services	- Urban transport - University education

Figure 2.4: Conceptual framework of exit and voice in public services, adapted from Paul (1992: 1052).

To my knowledge, Hirschman's work on exit and voice and Paul's subsequent development have not been used to discuss SFPs. Given that SFPs are delivered in schools, one may expect the same degrees of exit and voice as for schools themselves (low exit, weak voice). Drawing on this literature, in Chapter 8 I detail the types of accountability in the MDMS and assess the possibility for exit and voice.

2.6.3 Accountability and NGOs

Following the expansion in the number of NGOs in the 1980s and 1990s, scholars raised concerns regarding NGO accountability (e.g. Cernea, 1988; Edwards and Hulme, 1996). Vivian (1994) discussed how NGOs were often perceived as a 'magic-bullet', that, without much evidence can be fired in any direction and find their target (in Edwards and Hulme, 1996). Edwards and Hulme (1996) consequently

[16] When products are non-differentiable, such as drinking water, and thus used by all, those with a weak voice may benefit from the voice of others. When products are highly differentiable, this effect does not occur (Paul, 1992).

argued the need to take NGO accountability more seriously. From the expansive literature on NGO accountability which has emerged since, there are two key questions to consider.

First, who are NGOs accountable to? Najam (1996) suggested there are three categories of NGO accountability: to patrons, to clients and to themselves. These categories can be discussed directionally as upward to donors, downward to clients and communities and internally to NGOs (Ebrahim, 2003). These categories can be disaggregated further: patrons can include external and internal donors and clients can include direct and indirect beneficiaries (Khan, 2003). Second, what are the mechanisms through which accountability can or does take place? Ebrahim (2003) discusses five broad categories of the accountability mechanisms used by NGOs: reports and disclosure statements, performance assessments and evaluations, participation, self-regulation and social audits. The first two are tools which might be used regularly, whereas participation and self-regulation are broader, indicating actions to be taken (Siddiquee and Faroqi, 2009).

In RBAs, NGO accountability must be seen in terms of duty-bearers fulfilling duties. As Mayhew *et al.* (2006) argue: 'service delivery NGOs, especially those claiming to be rights-based, should be seen as accountable duty-bearers, whether acting independently or on behalf of a national government. NGOs must ensure their three-way accountability - to government, to their clients, and also to other civil society groups' (200). Previous discussions of NGOs in the MDMS have not discussed their accountability. Therefore, following the literature on NGOs and accountability, in Chapter 8 I will explore who NGOs are accountable to in the MDMS and what mechanisms are in place to enable accountability.

2.6.4 Accountability and the MDMS

Although scholars have studied the justiciability of the right to food, for example Golay (2009) in India, accountability to realise the right to food is rarely considered. Indeed, Haddad (2009) argued that there is a need for research on nutrition governance that considers voice, power and accountability. Thus, in Chapter 8, I therefore answer the four questions posed by Mulgan (2003): In the MDMS, Who are accountable? To whom? For what? and How? In addition, I explore the extent to which 'exit' and 'voice' can be exercised in the MDMS.

2.7 Conceptualising Power

Although rarely discussed, at the heart of RBAs are power dynamics between duty-bearers and rights-holders. To assist in understanding and interpreting the dynamics, here I provide a necessarily brief overview of the conceptualisation of power.

Lukes (1974; 2005) presented three faces or dimensions of power. The first dimension is based on Dahl (1957: 202-203), who stated '*A* has power over *B* to the extent that he can get *B* to do something that *B* would not otherwise do'. Bachrach and Baratz (1962) criticised this view, arguing that power had a second, hidden face as it may confine decisions. In this view, '*A* may exercise power over *B* by getting him to do what he does not want to do, but he also exercises power over him by influencing, shaping or determining his very wants' (1974: 23). Lukes (1974) took this further, suggesting power may have a third dimension or 'face', where power may influence one's desires, beliefs and judgments against one's interests'; "*A* exercises power over *B* when *A* affects *B* in a manner contrary to *B*'s interests," (Lukes, 2005: 30). Drawing on Lukes, Gaventa (1980; 2006) and VeneKlasen and Miller (2002) distinguish between three types of power: visible power is observable decision making, hidden power is the setting of the political agenda and invisible power is the shaping of meaning and what is acceptable.

Gaventa (2003) presents a review of the conceptualisation of power since Lukes (1974). Here, I consider two: Foucault and Giddens. For Foucault, power was not something that was 'wielded', but rather was 'dispersed and subject-less, as elements of broad 'strategies' but without individual authors' (Gaventa, 2003). Foucault saw power as ubiquitous and as neither an institution or agent. Moreover, for Foucault power was not necessarily negative and exclusionary, but something that may also be positive or productive. As Gaventa (2003) argues, although it is useful to see agents as constructed through power, the agent-less concept of power is difficult to apply practically (*ibid*). Giddens' (1984) structuration theory brings together discussions of agency and structure. In Giddens' view 'people are free to act, but draw upon and replicate structures of power through their own actions' (Gaventa, 2003). Central to Giddens' approach, is the recognition that actors can have the power to resist.

Surprisingly absent from Gaventa's (2003) review is a discussion of Hayward's work. Drawing on Foucault, Hayward (2000) puts forward an alternative view of power to Lukes' agent-centric approach. Hayward (2000) argues for a de-facing of power, 'reconceptualizing it as a network of social boundaries that constrain and enable action for all actors' (11). In Hayward's view, those constraints on freedom that are labelled 'structural' are social in origin and therefore analyses of power must analyse structural constraints on freedom (Hayward, 2000; Hayward and Lukes, 2008). As outlined in Hayward and Lukes (2008), the central difference between the conceptualisations of power they present is the source of power; are only identifiable agents sources of power or should structural constraints on freedom be sources of power as well? As Lukes and Hayward (2008: 17) summarise:

> If we think of power, as Lukes urges us, in strictly agent-centric terms, then we may overlook some subset of significant and remediable social constraints on human freedom. Nevertheless,

> if we think of power, as Hayward suggests, in structural terms, then we may lose sight of those particular agents who are responsible for the constraints we analyze and review.

I do not consider Lukes' and Hayward's approaches to be incompatible. Rather, when read together, they highlight the need to consider both agents and structures. Thus, in this thesis and particularly in Chapter 8, I draw on work of Lukes, Hayward and the other authors cited in this section as to explore power in the MDMS.

2.8 Public Policy

Literature on public policy and development programmes has been drawn on throughout the previous sections; however, it is also necessary to consider this literature separately. Schaffer (1984: 188) describes public policy as 'an aspect of state politics which is inherently involved in what Foucault calls 'governmentality', that is:

> The ensemble formed by the institutions, procedures, analyses and reflections, the calculations and tactics that allow the exercise of this very specific albeit complex form of power, which has as its target population, as its principal form of knowledge political economy, and as its essential technical means apparatuses of security. (Foucault, 1991: 102-103)

The analysis of governmentality requires the examination of political technologies, the 'rational, modern structures, systems, relationship's and practices of government that have disciplinary effects' and technologies of the self, 'the means by which disciplinary norms of institutions are internalized through self-surveillance' (Fernandez, 2012: 23). Although indebted to Foucault, Clay and Schaffer (1984) presented new ideas of public policy (Fernandez, 2012). Having observed that policy was typically discussed as either a success or failure, Clay and Schaffer (1984: 1) argued:

> The more important question is not why public policy 'fails'. It does not always necessarily or completely do so... Public policy is, after all, what it does. The point is to explain what that is, and then see if that explanation can itself be an instrument for change and improvement.

Schaffer (1984) argued that public policy was commonly portrayed as linear and dichotomous; policy decisions are made to address a problem after which separate implementation occurs. Shaffer considered the separation between policy and implementation to not only be false but to have 'grave consequences', obliterating the 'need or occasion for discussing or bringing to account, all aspects of

the actual construction of policy practice' including allocations and calculations, strategies, therapies and other technologies, 'which would be highly doubtful…were they ever brought to question' (160). Moreover, Schaffer argued that separation permits the avoidance of responsibility: 'If policy is a dichotomy each side can, and does, blame those who…can be treated as being on the other side of the line' (*ibid:* 157).

Clay and Schaffer therefore argued for a new way of conducting policy analysis, which examined 'the process and practice of what governments actually do, to explain the linkages between intentions and outcomes' (1984: 2). Schaffer argued that there are 'three coincident zones in public policy: themes, authorizations and allocations' (1984: 188). In the first 'zone', is the setting of agendas and strategy; **'**the declaration of a theme, the very action of identifying a problem like that of malnutrition…implies a search for improvement, the 'good purpose'' (Clay and Schaffer, 1984:1). This theme, 'the problem recognized and the search envisaged, constitutes a strategy' (*ibid*). Second, is proceduralisation through laws and rules. Third is the distribution and allocation of resources, to which Harriss (1991) added the mobilisation of these resources. Clay and Schaffer (1984) also argued that to analyse policy requires closing off excuses and exits ('escape hatches') commonly used to explain the gap between intentions and outcomes. Commonly used escape hatches include a lack of political will, shortages such as of man-power and a missing ingredient such as the representation of a group in policy-making.

There are two broad insights from Clay and Schaffer (1984) which have since been developed and are insightful here. First, Schaffer advocates moving beyond the distinction between design and implementation. It is not the case that no separation can be made between design and implementation; but rather that the policy process is more complex and the latter is closely tied to the former. Therefore problems with public policy are not merely a product of poor implementation; a point also made by Gupta (2012). The setting of agendas is closely tied to the outcomes of public policy. Li writes (2007: 7): 'Two key practices are required to translate the will to improve into explicit programs'. The first is problematisation; the 'ensemble of discursive and non-discursive practices that make something enter into the play of true and false and constitute it as an object of thought' (Foucault, 1994: 670), or put more simply, how a problem is defined over time (Kimura, 2013). Bacchi (2009) advocates asking 'what's the problem represented to be?' in public policy. Sridhar (2008) shows this in practice. Sridhar finds discord between the World Bank's biomedical approach to the problem of nutrition which attributed poor nutrition to inadequate knowledge and child caring practices and the experiences of malnutrition in Tamil Nadu which was affected far more by inadequate purchasing power and gender inequality' (*ibid*: 153). Although firmly connected, the second practice is 'rendering technical'; when political problems are reposed as technical problems to which technical solutions can be offered (Ferguson, 1994; Li, 2007). In the process, development is depoliticised.

Second, is the need to go beyond 'success' and 'failure'. In *Seeing Like a State: Why Certain Schemes to Improve the Human Condition Have Failed,* Scott (1998) examines why 'well-intended schemes to improve the human condition have gone so tragically awry' (4). Scott explains failure as arising from the state simplifying what they seek to improve through standardisation and homogenisation, neglecting to account for 'practical knowledge, informal processes, and improvisation' (6). However, Ferguson (1994) in his seminal study of the Thaba-Tseka Development Project in Lesotho showed that 'success' and 'failure' do not adequately capture programme outcomes. Drawing on Ferguson, Li (2005) argues instead of asking why schemes succeed or fail, instead we should ask 'What do these schemes do? What are their messy, contradictory, multi-layered, and conjunctural effects?' (384). Li (2007) examines how programs are configured and focuses on those at the 'receiving end' of government schemes, overall arguing 'that engaging with the ''messy actualities'' of rule in practice is not merely an adjunct to the study of government—it is intrinsic to it' (283). I do not believe it is the case that the terms 'success' and 'failure' are entirely redundant; they are useful in discussing whether a policy or scheme achieved its aims. However, following Ferguson (1994) and Li (2005; 2007) it is necessary to also go far beyond these terms.

Literature on public policy has not been drawn on to examine the MDMS or Indian food security policy. The dichotomous view of policy of which Schaffer speaks is all too evident in discussions of India's food programs. For example, Cheriyan writes: 'Food security schemes, although well designed, have not been successfully implemented' (2006: 13). Studies consequently typically focus on the implementation of these schemes rather than their design. Furthermore, the pre-occupation with success and failure is still evident in discussions of the MDMS. Some consider the MDMS "successful", especially relative to the PDS and ICDS, which have far higher levels of corruption and leakage and generally function more poorly (Bonnerjee and Koehler, 2010; Khera, 2013). In the media, however, it is not unusual for the scheme to be labelled a failure (e.g. Bhowmick, 2016; Varkey, 2017). There is however, the need to consider what the MDMS does; how the different aspects of the policy process relate to the realisation of a right to food. Thus, in Chapter 4 I briefly consider what 'success' might mean in the MDMS; however, the main focus of this thesis is the messiness of the design and implementation of the MDMS and its intended and unintended consequences.

2.9 Research Objectives

In the previous review, I have shown the increasing emphasis being placed on both the concept of a right to food and on the need for rights-based social protection. India is the exemplar of both; under a right to food, eligible citizens have a legal right to entitlements provided by the state. However, a clear distinction must be made between having a right and the realisation of this right (Kent, 2007). The difficulty in realising the right to food in India has been recognised (Drèze, 2004a; Li, 2010), yet, the

everyday realisation of rights has not been studied. More generally, little attention has been paid to how a rights-based approach to social protection can be achieved (Sepúlveda, 2014). In this context, I examine the everyday realisation of rights in India, focussing on the right to a MDM and the broader right to food.

As has been established, a rights-system has three components. For rights to be fulfilled, duty-bearers must fulfil their duties to rights-holders and mechanisms must exist for these duty-bearers to be held accountable should they not fulfil their duties. However, the literature relevant to rights-holders, duty-bearers and accountability mechanisms (Sections 2.4-2.6) indicates that the task of realising rights is more complex. Rights-holders must have the capability to claim their rights, duty-bearers must have the capacity to fulfil their duties and rights-holders, their representatives and other actors must be able to hold duty-bearers to account. To comprehend the realisation of rights, one must understand these dynamics and how these actors exist in the context of 'laws, budgets, rules, practices, positions, and authority...the resources that make up, with schemas, the nature of structure and give meaning to human agency' (Giddens, 1979*:* 520). To understand the realisation of rights, one must understand these structures.

Furthermore, for the fulfilment of rights, the process of realisation must adhere to rights-based principles. Therefore, one must focus not only on the end of rights realisation but also the process. To understand the relationship between a right to a MDM and a right to food, one must understand the design and implementation of the MDMS. Both the FAO literature on rights-based SFPs and the literature on public policy highlights the need to consider both design and implementation. One must consider the agenda, proceduralisation and allocation and distribution of resources (political strategies and technologies).

In this context, the overarching objective of this research is to examine the everyday realisation of rights in India's MDMS, both the right to entitlements in the MDMS and the wider right to food. Drawing on the literature on RBAs and public policy, I suggest that examining the three components of a rights system and rights-based principles and how these exist both 'on paper' and in practice is an effective means of examining rights-based social protection schemes. The specific research questions guiding this study are:

1. To what extent does the MDMS contribute to the fulfilment of a right to food?

    i. What problems is the MDMS intended to address? What are the objectives of the scheme? How do these objectives relate to the problems?

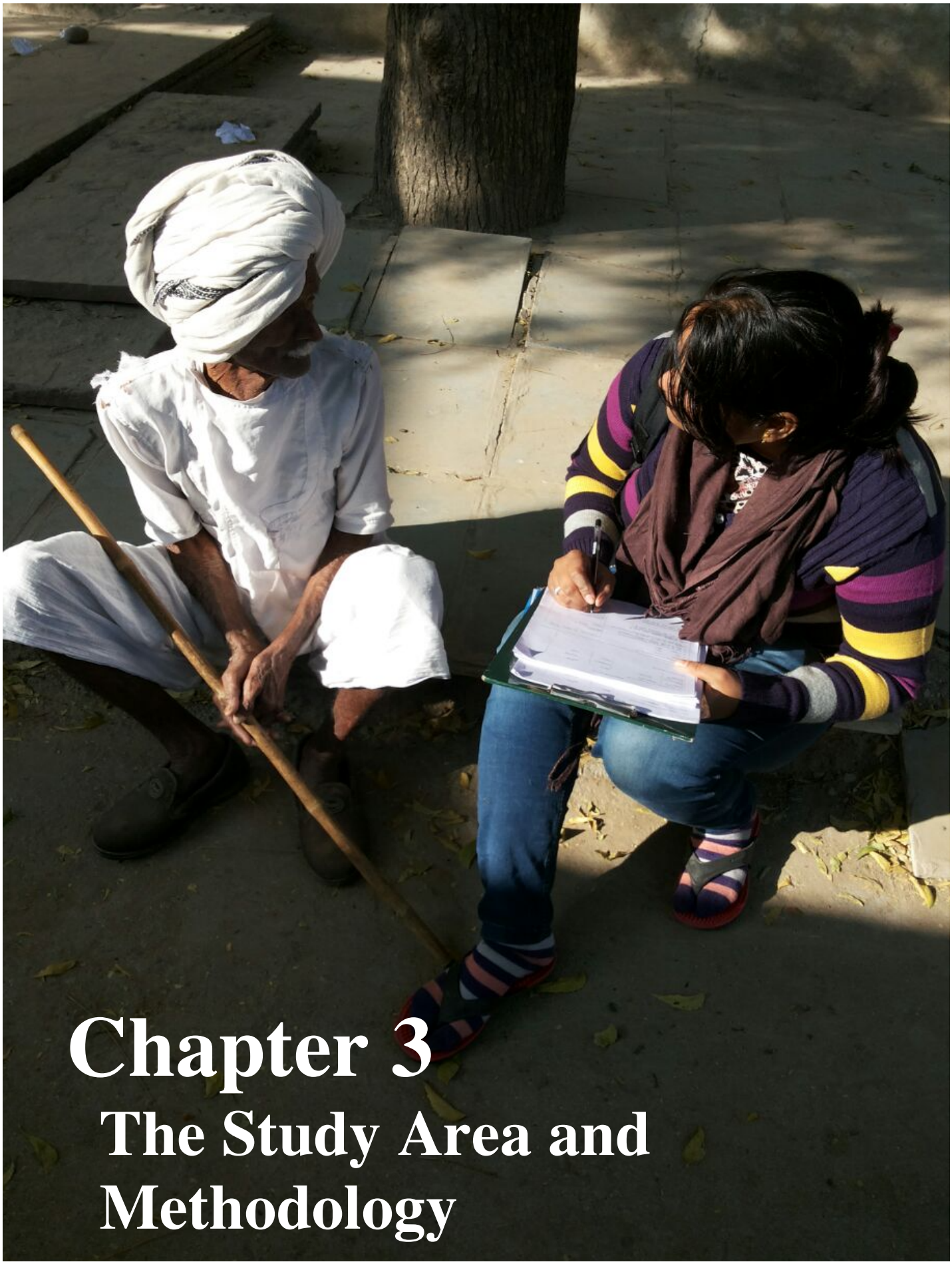
ii. Are all those who are food insecure or vulnerable to food insecurity included in the MDMS?
iii. Are the needs of the rights-holders reflected in the design of the MDMS? Does the food meet their dietary needs?
iv. What are the norms regarding food quantity, quality, safety and cultural acceptability? Are these norms fulfilled in practice and if not, why?

2. Does the MDMS reflect the principles of participation, accountability, non-discrimination, transparency, human dignity, empowerment and the rule of law?

    i. To what extent are these principles reflected in the design of the scheme?
    ii. To what extent are each of these principles adhered to in the operation of the MDMS?

Although concerned with the design, implementation and consequences of the MDMS, this thesis does not consider the impacts of the scheme in terms of whether the stated objectives (to increase nutritional status, to increase attendance and to provide nutritional support during the summer) are realised. Such research would require longitudinal data, impossible to collect given the time-constraints of this research. To determine causality, a control study would also be required, impossible given the near universality of the scheme. Instead, concern is with the consequences for the realisation of the right to food.

The research questions are not answered in turn. Doing so would produce a far too fragmented depiction of the MDMS, obscuring trends and underlying causes. Instead, I consider the problems (Chapter 3), the design (Chapter 4) and implementation (Chapters 5-8). Based on the three components of a rights-system (Kent, 2002), in the empirical chapters I focus on rights-holders (Chapter 5), their rights (Chapter 6), duty-bearers (Chapter 7) and accountability (Chapter 8). I provide an overall analysis and answer the research questions in Chapter 9.



Chapter 3

The Study Area and Methodology

Chapter 3

The Study Area and Methodology

3.1 Introduction

An understanding of the context in which research is conducted is necessary in any study, but is particularly pertinent here for two reasons. Firstly, to analyse a social protection scheme it is necessary to understand the problem; the food and nutrition security situation of the area in which that scheme is implemented (FAO, 2008; Jonsson, 2003; 2005). To examine a SFP, one needs to understand the problems facing school-aged children specifically (FAO, 2008). Secondly, to begin to comprehend capabilities and capacity and the overall implementation of SFPs, it is necessary to understand the context in which SFPs are implemented. In Section 3.2, I provide such context. I discuss the choice of location and provide a profile of the study state, Rajasthan, as well as the sampled districts, blocks and locations. In Section 3.3, I detail the methodology used in this study. I begin by outlining the practicalities of conducting this research and subsequently explain the approach taken and methods used. I then outline the ethical considerations that guided the study before finally reflecting on the influence of my position on the research.

3.2 Study Area

3.2.1 Choice of Location

Although a central Government scheme, the MDMS is implemented at the state level. Implementation therefore differs considerably between states (Drèze and Goyal, 2003; Khera, 2006, 2013; Planning Commission, 2010). For example, Tamil Nadu is considered an exemplary implementer of the MDMS, whereas Bihar is considered to have implemented the scheme poorly. The state is therefore an appropriate unit of analysis. Given the size of states and the personnel, financial and time

constraints of PhD fieldwork, a multi-state study was impossible. Therefore, I focused on one state: Rajasthan. As outlined in Chapter 2, I sought to examine PPPs in the MDMS. Centralised kitchens run by NGOs operate in 15 states and the UTs of Delhi and Chandigarh (see Section 4.6.3). I excluded the UTs as they would not enable research to be conducted into different geographical contexts. Second, I knew that proficiency in an Indian language would be required to conduct the fieldwork. I therefore learnt Hindi, beginning in 2012. I chose Hindi as it is widely spoken and therefore would not limit my choice of study state as a state-specific language would. Once the non-Hindi speaking states were excluded, Bihar, Chhattisgarh, Haryana, Jharkhand, Madhya Pradesh, Rajasthan and Uttar Pradesh remained. Third, I excluded states that would affect the wider applicability of the research; Haryana was excluded due to its proximity to Delhi and relative wealth and Bihar was excluded due to the poor implementation of the scheme in the state. Fourth, I needed a state in which I would be safe conducting fieldwork in rural areas. I therefore excluded Chhattisgarh and Jharkhand.

From the list of 15 states, Madhya Pradesh, Rajasthan and Uttar Pradesh remained. From these, I selected Rajasthan for three reasons. First, Rajasthan is considered an exemplar of the use of PPPs in the MDMS (MHRD, 2016h) and thus could provide an insight into the PPP model. Second, although Rajasthan did not begin to implement the MDMS until 2001, it is considered to have implemented the scheme well (Khera, 2013; Planning Commission, 2010). Implementation of the MDMS in Rajasthan is therefore a direct result of the right to food case. Third, Rajasthan is a relatively safe state; there is a widespread presence of NGOs and in certain areas there are many tourists. It was thus a sensible choice practically, as well as academically. Although not a factor in my decision, Rajasthan provides an interesting setting for a study on the right to food as the 2001 PIL was launched on behalf of the people of Rajasthan (Section 1.1).

Rajasthan has a population of more than 68 million and is India's largest state by area. It was therefore necessary to focus on a sub-section of the state. Rajasthan is divided into 33 districts. I initially decided to focus on one district. Cross-referencing the presence of centralised kitchens and urban and rural locations, the two potential districts were Dungarpur and Udaipur. Udaipur city is larger than Dungarpur city with a population of almost 600,000 compared to 50,000. As I wished to examine the scheme in different contexts, a reasonably large urban area was preferred. I therefore selected Udaipur. On arrival in Udaipur, it transpired that the centralised kitchen run by the NGO the Naandi Foundation had closed (see Section 7.6.1). I therefore expanded the study area to include the neighbouring Rajsamand district, which has a centralised kitchen in the town of Nathdwara.

Udaipur district has a population of 3.1 million and Rajsamand district has a population of 1.2 million (GOI, 2011a). It was therefore necessary to focus sub-sections of the districts. Udaipur district is divided into 11 *tehsils* (blocks) and Rajsamand into seven. One block in each district would have been

insufficiently representative; however, blocks are sizable both in terms of population and area. Therefore, I selected four blocks: Girwa and Kotra[1] in Udaipur district and Khamnor and Kumbhalgarh in Rajsamand district (see Section 3.2.3). Girwa was selected to provide insight into the change from centralised to decentralised provision and the functioning of the MDMS in an urban area. Khamnor was selected as the MDM in the block is supplied from a centralised kitchen in Nathdwara. Kotra and Kumbhalgarh were selected to provide insight into the functioning of the MDMS in rural areas. This choice of blocks allows comparisons to be made.

3.2.2 Rajasthan and the Study Districts

Geography

Rajasthan is a state in the north west of India (Figure 3.1), bordered by Punjab, Haryana, Uttar Pradesh, Madhya Pradesh, Gujarat and Pakistan. The largest city and state capital is Jaipur, which has a population of 3.05 million (GOI, 2011a). In total, one quarter of Rajasthan's population reside in urban areas (*ibid*). As shown in Figure 3.1, Rajasthan's geography is diverse. The Thar desert is in the west and the Aravalli Mountain Range extends across the state from southwest to northeast. Rajasthan has the lowest annual rainfall of all states and is particularly susceptible to drought (WFP, 2009). Drought renders farmers incapable of meeting their food consumption needs (Bhargava, 2001), children more prone to PEM (Singh *et al*., 2006) and makes transitory food insecurity a problem (Sagar, 2000).

[1] Both Kotra and Kumbhalgarh are the names of settlements as well as blocks. Throughout this thesis, I use 'Kotra' and 'Kumbhalgarh' to refer to the blocks only.

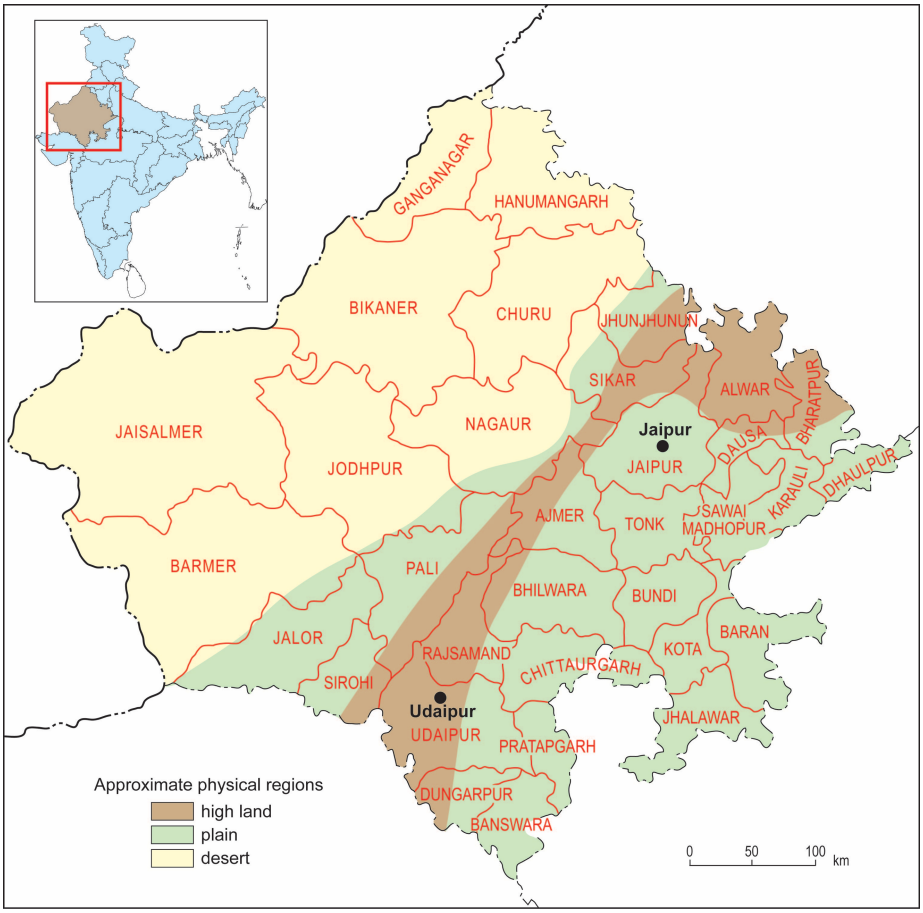


Figure 3.1: A map of Rajasthan

The districts of Udaipur and Rajsamand are in the south of Rajasthan (Figure 3.1). Udaipur is the larger of the two, both geographically and by population. The Aravalli hills run through both districts. The summer months (mid-March to June) are hot and dry, with an average maximum temperature of 39 °C (GOI, 2013b). Rainfall increases in June with the arrival of the Monsoon and continues into July, August and September (*ibid*). Winters are cooler, although the average maximum temperature is still 24.2°C (*ibid*). For the duration of the fieldwork, I was based in the city of Udaipur.

Demography and Socio-economic Characteristics

Table 3.1 summarises the gender, religion and caste characteristics of the population of India, Rajasthan and the study districts. Compared to the national averages, a higher proportion of the population in Rajasthan is male, Hindu and belongs to SCs and STs. Compared to Rajasthan, the districts have a more even sex ratio and a higher proportion of Hindus and STs. Notably, almost half of the population in Udaipur district belong to STs. The prevalence of disadvantaged and vulnerable groups in the study area is significant in the context of the NFSA, which states that a 'special focus' should be given to 'the needs of the vulnerable groups especially in remote areas and other areas which are difficult to access, hilly and tribal areas for ensuring their food security' (*NFSA*, 2013).

Due in part to its religious composition, Rajasthan is predominantly vegetarian[2] and has more vegetarians as a proportion of the population than any other state. In India, 28.4% of men and 29.3% of women are vegetarian, whereas in Rajasthan, these figures are 73.2% and 76.6% respectively (GOI, 2016d).

Table 3.1: Characteristics of the population (GOI, 2011a)

Characteristic		India	Rajasthan	Rajsamand	Udaipur[3]
Gender	% population male	51.5	51.8	50.3	51.1
	Sex ratio (total)	940	928	990	958
	Sex ratio (rural)	947	933	998	966
	Sex ratio (urban)	926	914	948	929
Religion (% of the population)	Hindu	79.8	88.5	95.6	93.5
	Muslim	14.2	9.1	2.9	3.4
	Christian	2.3	0.1	0.1	0.2
	Sikh	1.7	1.3	0	0.1
	Buddhist	0.7	0.02	0	0
	Jain	0.4	0.9	1.3	2.6
	Other/Not stated	0.9	0.1	0.1	0.1
Caste (% of the population)	SC	16.6	17.9	12.8	6.1
	ST	8.6	13.5	13.9	49.7

Rajasthan has a lower literacy rate than the national average (Table 3.2). Rajasthan's female literacy rate is the second lowest in India, surpassed only by Bihar at 51.5% (GOI, 2011a).

[2] In India, vegetarians consume neither meat, fish nor eggs.
[3] The total sample sizes used here and in every other table in this section (unless otherwise stated) are the total populations of these locations: India, 1,210,854,977; Rajasthan 68,548,437; Rajsamand district 1,156,597 and Udaipur district, 3,068,420.

Table 3.2: Percentage of the population (+7 years) that are literate (GOI, 2011a)[4]

	India	Rajasthan	Rajsamand	Udaipur
Population	73.0	66.1	63.1	61.8
Male	80.9	79.2	78.4	74.7
Female	64.6	52.1	48.0	48.5
Urban	84.1	79.7	81.9	87.5
Rural	67.8	61.4	59.5	54.9
Urban Male	88.8	87.9	91.1	93.4
Urban Female	79.1	70.7	72.8	81.2
Rural Male	77.2	76.2	75.9	69.6
Rural Female	57.9	45.8	43.3	39.8

Nationally, 39.7% of India's population work.[5] Table 3.3 details the percentage of the population engaged in employment and the nature of the employment. The overall work participation rate is higher in the study districts than the state and national averages. A smaller proportion of workers in Rajasthan are engaged in main work than the national average. An even smaller percentage of the workforce are engaged in main work in the study districts. An absence of permanent work for almost 40% of the workforce in Udaipur and 34% in Rajsamand is likely to have implications for labour-based entitlements and thus for food security. A greater proportion of the workforce are engaged in agriculture in Rajasthan than the national average and in the study districts than in Rajasthan. In 2013-2014, the average per capita annual income in Rajasthan was INR 65,974; higher than neighbouring Uttar Pradesh (INR 36,250) but considerably lower than in Punjab (INR 92, 638), Gujarat (INR 106,831) and Haryana (INR 133,427) (GOI, 2015b).

[4] The sample sizes (the population above seven years) are: India, 1,046,339,724; Rajasthan, 57,898,933; Rajsamand district, 980,556; Udaipur district, 2,559,870.
[5] The GOI (2011) define work as performing any economically productive activity (for or not for compensation) within the previous year.

Table 3.3: Employment (GOI, 2011a)

	India	Rajasthan	Rajsamand	Udaipur
The population that work (%)	39.8	43.6	47.6	44.5
Workers in main work (6-12 months) (%)	75.2	70.5	65.8	60.2
Workers in marginal work (3-6 months) (%)	20.1	23.5	27.6	31.3
Workers in marginal work (0-3 months) (%)	4.6	6.1	6.5	8.5
Workers that are cultivators (%)	24.7	45.6	37.7	39.5
Workers that are agricultural labourers (%)	30.0	16.5	19.4	22.2
Workers in household industries (%)	3.8	2.4	2.5	2.5
Workers in other employment (%)	41.6	35.5	40.5	35.9

The mean household size in India is 4.8, compared to 5.4 in Rajasthan, 4.7 in Rajsamand and 4.9 in Udaipur (GOI, 2011a). Table 3.4 shows indicators of living conditions. Generally, living conditions are poorer in Rajasthan than nationally, and worse in Udaipur district. The percentage of households with a latrine and with tap water is especially low in the study districts, likely to result in problems for utilisation (see Appendix A.2).

Table 3.4: Indicators of Living Conditions (GOI, 2011a)

Indicator		Percentage of census households			
		India	Rajasthan	Rajsamand	Udaipur
Wall material	Stone with mortar	10.8	38.4	72	31.5
	Stone without mortar	3.4	6.9	12.5	7.4
	Burnt brick	48.1	28.5	6.4	21
	Mud/unburnt brick	21.8	22.1	7.6	38
House condition	Good	53.2	51	45.1	44.1
	Liveable	41.5	45.1	51.2	52.6
	Dilapidated	5.3	3.9	3.7	3.3
Water source	Tap	43.5	40.6	35.4	24.5
	Well	11	10.8	19.1	23.8
	Tubewell/handpump	42	37.5	43.1	49.1
	Other (spring, river etc.)	3.5	11	2.3	2.6
Latrine	Latrine in home	46.9	35	20	24.4
	Public latrine	3.2	0.7	0.7	0.8
	Defecate in the open	49.8	64.3	79.3	74.8
Main source of lighting	Electricity	67.2	67	78.7	57.9
	Kerosene	31.04	30.9	19.4	39.5
	Other	0.8	1.2	1.3	2
	No light	0.5	0.8	0.6	0.5

Given these socio-economic trends, it is unsurprising that Rajasthan fares worse than the national average in terms of development indicators. The Human Development Index (HDI) is calculated based on life expectancy at birth, mean and expected years of schooling and per capita income. In 2011, the United Nations Development Programme calculated the HDI for each Indian state (Suryanarayana *et al*., 2011). India had an HDI score of 0.504. Rajasthan had a lower score of 0.468, the fourteenth lowest of 19 states and between Bangladesh (0.469) and Ghana (0.467) (*ibid*).

Food and Nutrition Insecurity

There have been three state-level assessments of food security in India: Athreya *et al*.'s (2008) index of food insecurity in rural India, Athreya *et al*.'s (2010) index of food insecurity in urban India and Menon *et al*'s. (2008) State Hunger Index. Figure 3.2 illustrates Athreya *et al*.'s (2010) results. The highest rates of food insecurity in urban areas are found in Bihar, Madhya Pradesh, Orissa and Rajasthan. Together, with the other two indices (Appendix A.3.1), these studies show a noticeable geographical pattern in food insecurity; a belt of states in the north, from Gujarat to Bihar, have the highest rates of food insecurity whereas states such as Kerala and Punjab have low levels.

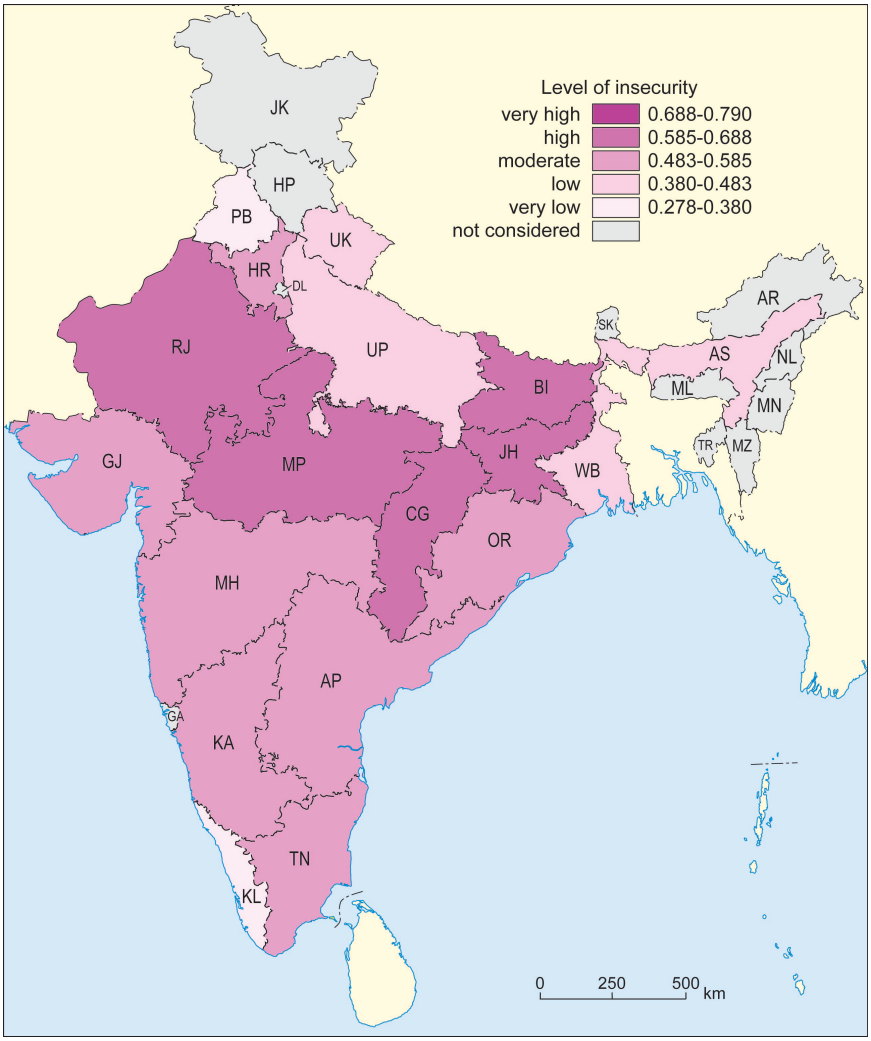


Figure 3.2: A map of urban food insecurity (data from Athreya *et al*., 2010)

Rajasthan is not the most food insecure state. Rajasthan had the twelfth highest level of food insecurity in rural India (*n*=19 states), the fourth highest level of food insecurity in urban India (*n*=14 states) and the eleventh highest level of food insecurity in the State Hunger Index (*n*=16 states). Rajasthan is, however, considered to have a 'seriously alarming' level of hunger (Menon *et al*., 2008) and to be moderately food insecure (Athreya *et al*., 2008).

Food insecurity levels vary within Rajasthan. The WFP Food Security Index[6] (2009b) for rural Rajasthan classified Udaipur as extremely food insecure and Rajsamand district as severely food insecure (Figure 3.3). Consequently, they are two of 22 districts in Rajasthan considered priority areas for intervention (*ibid*). The WFP's (2009a) study of rural food security identified the western region of Rajasthan as one of three priority areas for action in India.

[6] The Index was based on indicators of availability, access and absorption, which are outlined in Appendix A.3.1.

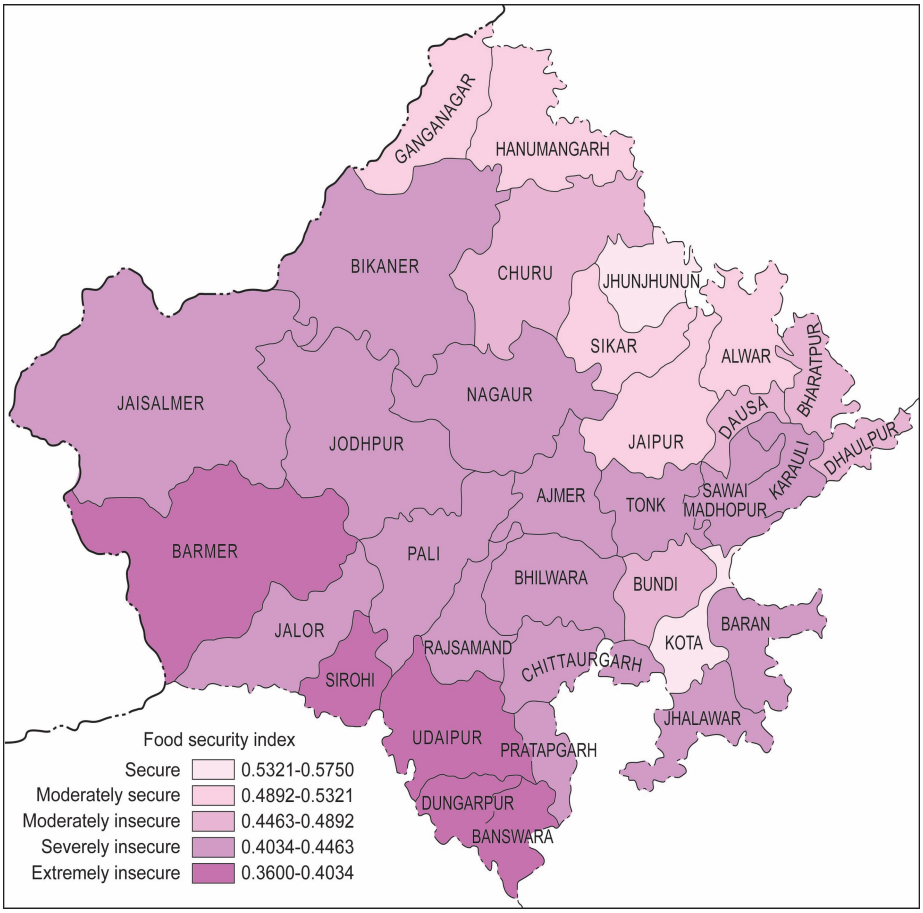


Figure 3.3: A Food security map rural Rajasthan (data from WFP, 2009b)

Although useful, these indices use data from the 2001 Census, the 2005-2006 National Family Health Survey (NFHS) and the 2004-2005 National Sample Survey (NSS) and are therefore now dated. Furthermore, aggregating indicators obscures the prevalence of specific problems. Considering these limitations, the following discussion examines malnutrition levels drawing on the most recent data.[7] I use data from three-national level surveys: the NFHS-4 (2015-2016), the 2013 Rapid Survey on Children (RSOC) and, to permit comparison, the NFHS-3 (2005-2006)[8]. I also use data from the Annual Health Survey (AHS) which is conducted by the GOI in nine states including Rajasthan.

Since 2005-2006, the prevalence of stunted and underweight children in India has decreased (Figure 3.4). The extent of progress and whether wasting has decreased or increased, however, depends on the survey used.

[7] The different sources of malnutrition data are discussed in Appendix A.3.2.
[8] The findings from the NFHS were published by the International Institute for Population Sciences in Mumbai (IIPS). NFHS-3 was published in 2006 and NFHS-4 in 2016. The results from the RSOC (2013) are published in a national report by the GOI and UNICEF (2016) and in state-level fact sheets by the GOI (2016c). Results from the AHS survey used here were published by the GOI (2014).

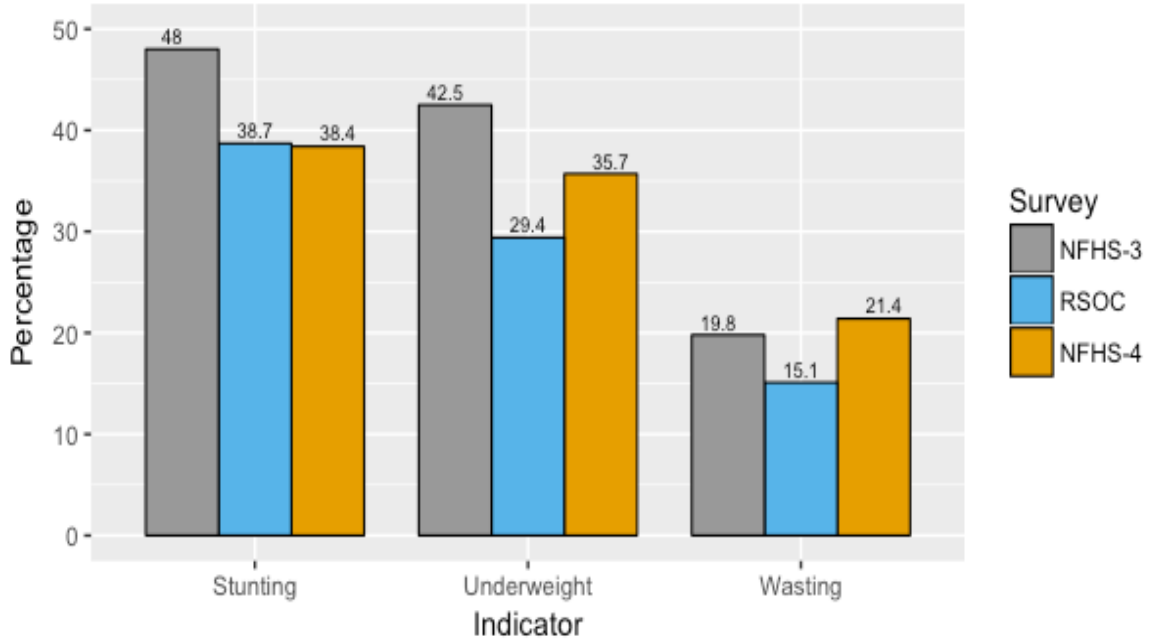


Figure 3.4: The prevalence of stunted, underweight and wasted children under five in India

Regardless of the survey, the prevalence of malnutrition in India is still high and compares unfavourably to other countries (Dasgupta *et al*., 2016). Only five countries outside of South Asia have a higher rate of underweight children than does India (29.4%): Djibouti (29.8%), Chad (30.3%), Sudan (33%), Niger (37.9%) and Timor Leste (45.3%) (*ibid*).[9] Although India has higher levels of economic development and lower levels of mortality than sub-Saharan Africa, India still has higher rates of child malnutrition, known as the 'Indian' or 'South Asian' enigma (Gillespie and Kadiyala, 2015; Haddad, 2013; Headey *et al*., 2015; Pritchard *et al*., 2014; Ramalingaswami *et al*., 1999).

The prevalence of PEM varies by state.[10] To illustrate, Figure 3.5 shows the prevalence of underweight under-five year olds by state. Echoing the pattern in Figure 3.2, prevalence of this PEM indicator is highest in a band of states across north India, including Rajasthan.

[9] The comparison is slightly limited by the different dates of the surveys.
[10] See Appendix A.3.

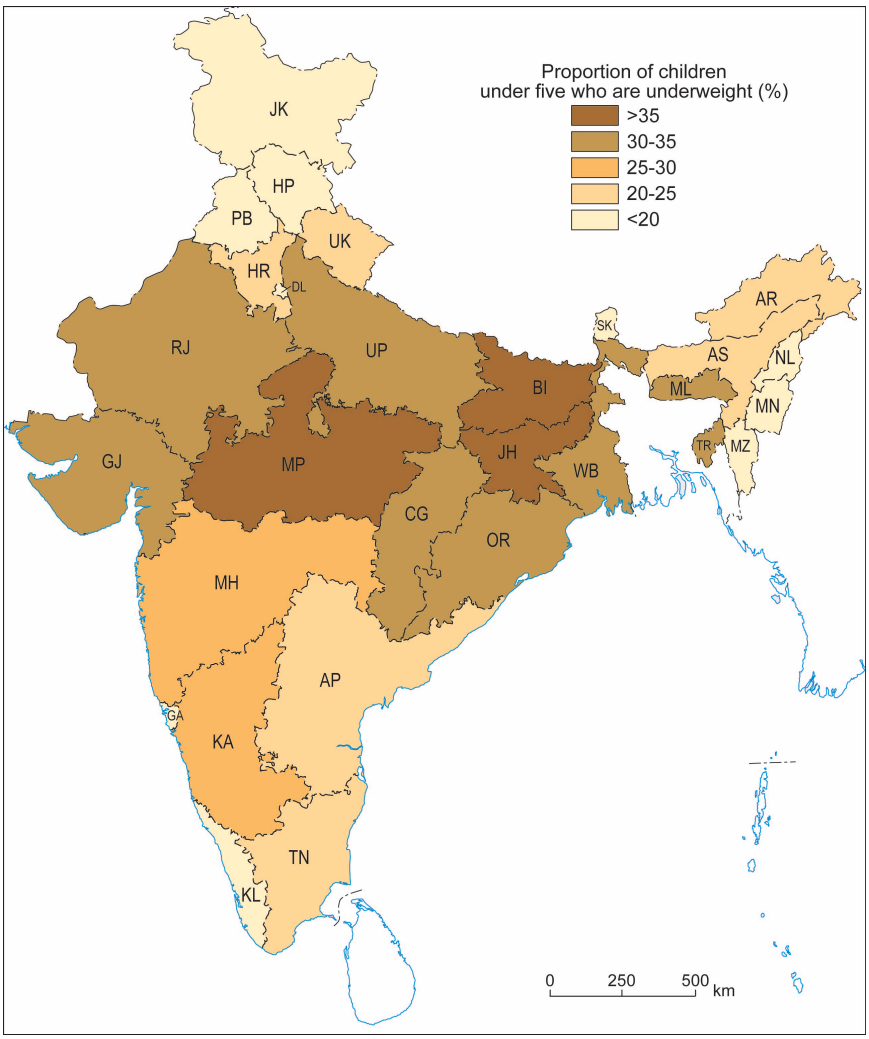


Figure 3.5: Percentage of under-fives in India that are underweight
(data from GOI and UNICEF, 2016)

Of the 28 states/UTs covered by the RSOC, Rajasthan had the eleventh highest prevalence of stunting, the seventeenth highest prevalence of wasting and the eighth highest prevalence of underweight children. Of the 26 states/UTs for which NFHS-4 data is available, Rajasthan had the fifth highest level of stunting, the ninth highest level of wasting and the sixth highest proportion of underweight children. As shown in Figure 3.6, findings from the different surveys vary considerably.

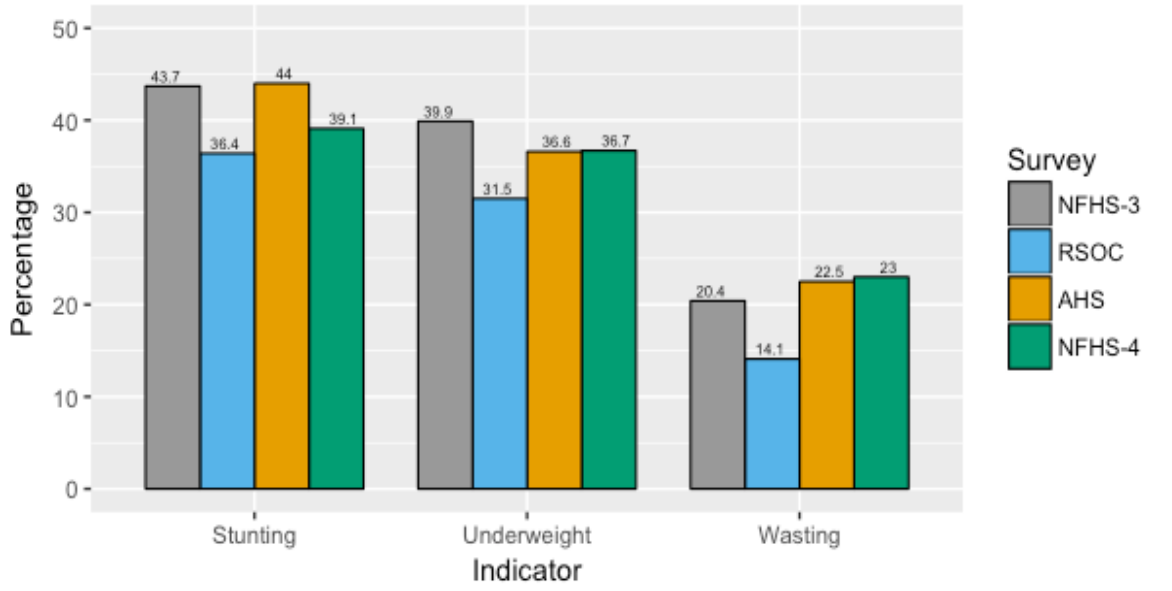


Figure 3.6: Prevalence of PEM in under-fives in Rajasthan

Due to 'intersecting inequalities' (Kabeer, 2010a), indicators of malnutrition vary socially as well as spatially. Table 3.5 presents the prevalence of PEM by caste, religion, wealth and mother's education. Children are more likely to be stunted if their mother has no education, if they are Muslim, if they are SC or ST and if they are from poor families.

Table 3.5: Malnutrition in under-fives in India (GOI and UNICEF, 2016)

		Percentage of under-fives		
		Stunted	**Underweight**	**Wasted**
Caste	SC	42.4	32.7	15.5
	ST	42.3	36.7	18.7
	OBC	38.9	29.3	14.8
	Other	33.9	23.6	13.6
Religion	Hindu	38.6	29.7	15.5
	Muslim	42.1	30.5	13.4
	Christian	32.2	21.9	15.4
	Sikh	28.7	17.4	10.7
	Jain	20	15.9	11.9
	Buddhist	26.7	26.2	22.0
Wealth Index	Lowest 20%	50.7	42.1	17.0
	Top 20%	26.7	18.6	13.0
Mother's Education	No Education	48.7	37.9	15.3
	Below Primary	44.1	34.3	15.2
	Primary	39.8	30.9	15.2
	Middle	35.4	25.8	15.2
	Secondary	31.3	22.4	14.5
	Higher Secondary	26.3	18.7	14.5

I analyse trends in child malnutrition in India further in Appendix A.3. Here, two things are germane to understanding the nutritional context in which the MDMS exists. First, malnutrition among school-aged children is high in the study area. As detailed in Table 3.6, children with a below-normal BMI and children with anaemia are prevalent in the study districts. Rajasthan also has the highest proportion of girls aged 10-18 years with a below normal BMI.

Table 3.6: Malnutrition in school-age children

Indicator	Group (years)	Survey	Percentage of children in the age group experiencing the indicator			
			India	Rajasthan	Rajsamand	Udaipur
Below normal BMI	5-18	AHS	NA	32.5	36.6	39.0
	Girls 10-18	RSOC	62.5	74.5	-	-
Anaemia	5-9	AHS	-	85.7	88.8	82.0
	10-17	AHS	-	81.4	84.6	79.8

Second, food intake among school-aged children in India is inadequate. Ramachandran (2016) used data from the National Nutrition Monitoring Bureau (NNMB) surveys to calculate nutritional requirements based on average weight and intake (Table 3.7). Although the needs for adults are largely met, there are considerable deficits for children, particularly adolescents.

Table 3.7: Required intake based on weight and actual intake (Ramachandran, 2016: 27)

Group		Required Intake (kcal)	Actual Intake (kcal)	Required - actual intake (kcal)
Men		1989	2000	+11
Women		1656	1738	+82
Pregnant women		1906	1726	-180
Children	1-3 years	840	714	-126
	4-6 years	1095	978	-117
	7-9 years	1379	1230	-149
Boys	10-12 years	1729	1473	-256
	13-15 years	2208	1645	-563
	16-17 years	2514	1913	-601
Girls	10-12 years	1469	1384	-85
	13-15 years	2030	1566	-464
	16-17 years	2130	1630	-500

Indian diets are also often insufficient in several food groups (Desai *et al*., 2016a). For example, the intake of certain food groups by girls aged 10-12 years[11], such as milk and green leafy vegetables (GLVs) is particularly low (Figure 3.7).

[11]I present the data for girls only as the percentages for boys are similar.

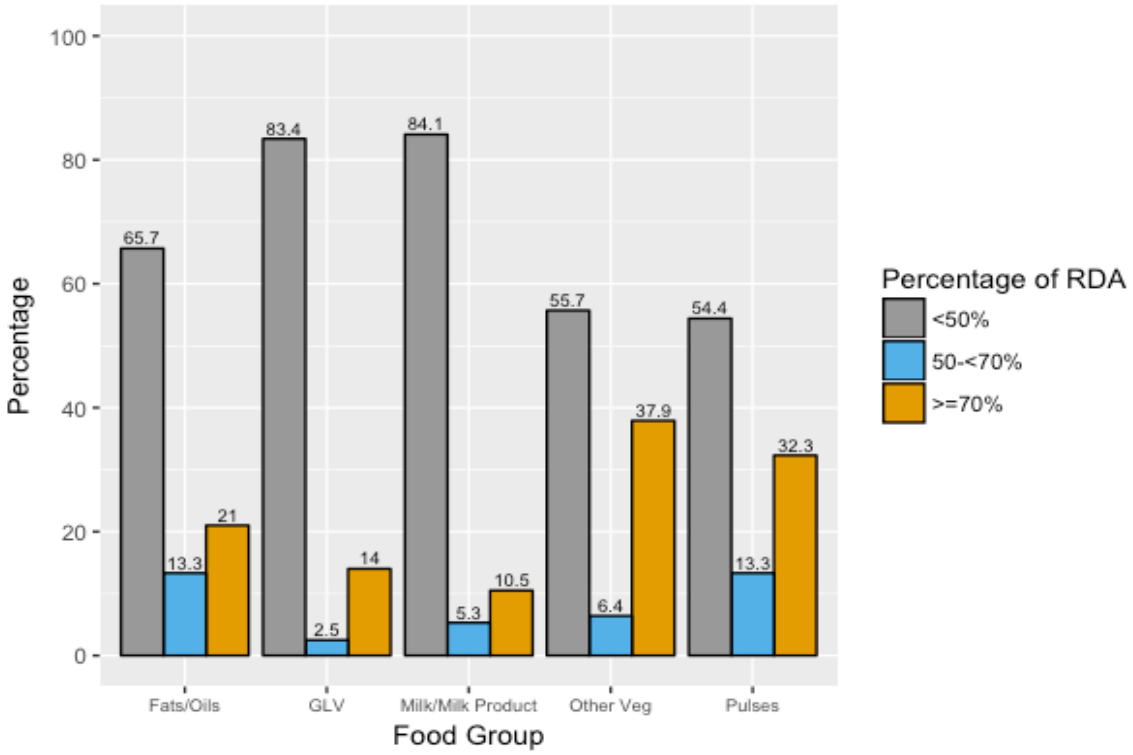


Figure 3.7: Consumption compared to RDA among girls aged 10-12 years (data from NIN, 2012)

Unsurprisingly, the NIN (2012) found the consumption of key nutrients across age groups was inadequate. To illustrate, Figure 3.8 shows the inadequate intake of many key nutrients among children aged 4-9.

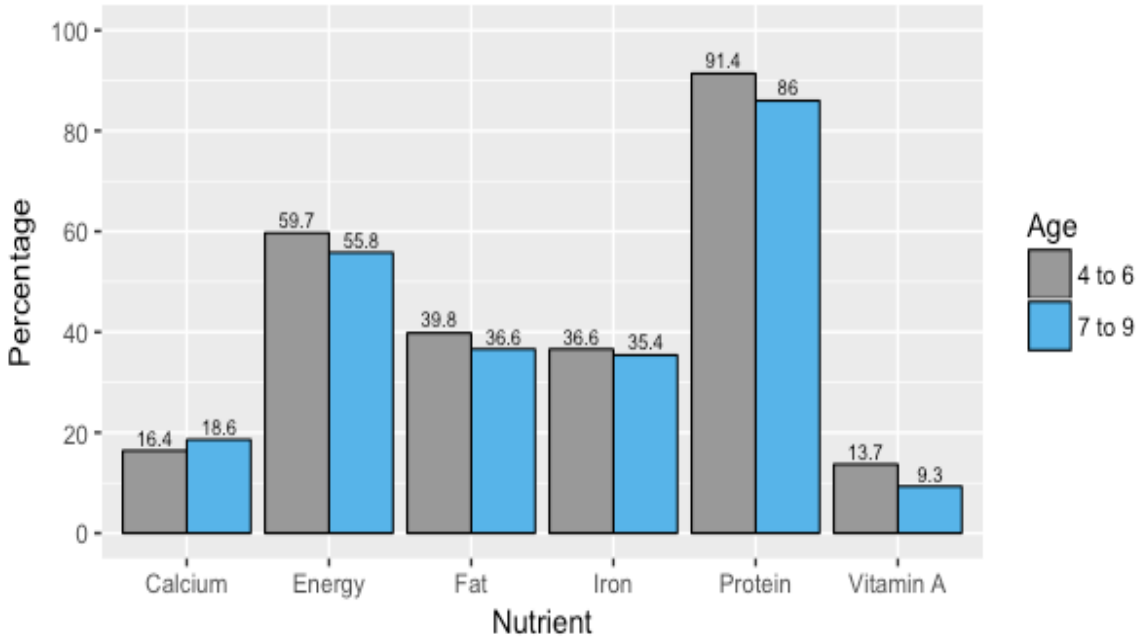


Figure 3.8: Percentage of children aged 4-9 years consuming more than 70% of RDA (data from NIN, 2012)

In this section, I have shown the nutritional context within which the MDMS in Rajasthan exists. In the state, by the time children enter school 33-44% are stunted, approximately one third are underweight and 14-23% are wasting. More than 35% of 5-18 year olds are undernourished and between 81-85% are anaemic. The diets of these students are also lacking in both quantity and quality.

3.2.3 The Blocks and Sampled Locations

Geography

I conducted fieldwork in four blocks: Girwa, Khamnor and Kumbhalgarh neighbour one another and Kotra, is in the west of Udaipur district, bordering Gujarat (Figure 3.9).

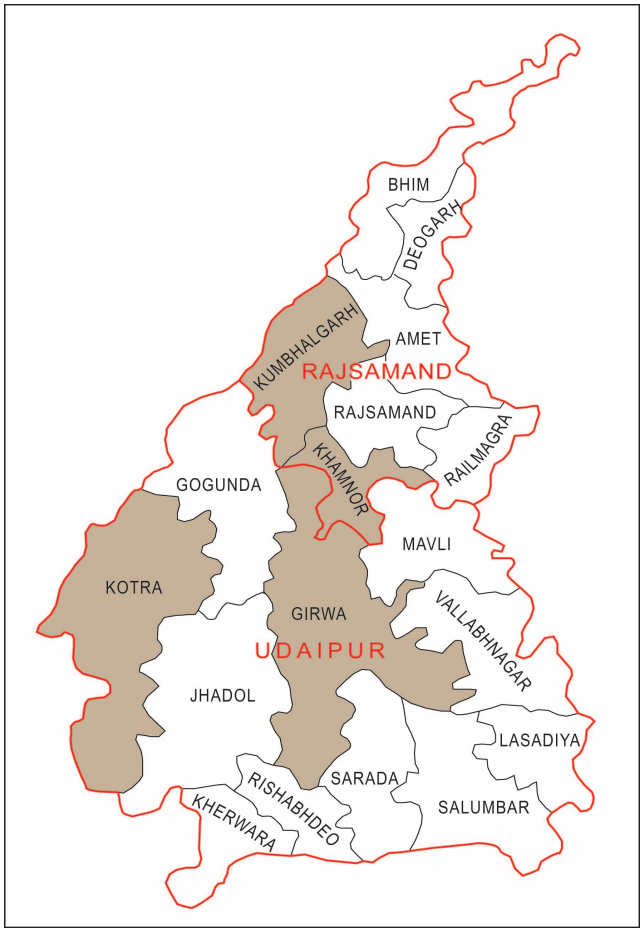


Figure 3.9: A map of the four study blocks, Kotra, Girwa, Khamnor and Kumbhalgarh (shown in brown)

Demography, Education and Employment

A summary of the key characteristics of the population of each block is presented in Table 3.8. The proportion of STs is higher than the district average in all blocks and is particularly high in Kotra.

Across all blocks, the literacy rate is lower than the district average (Table 3.2) and is strikingly low in Kotra, where just 20.1% of the population and 12.5% of women are literate. The proportion of people engaged in main work is also lower in Girwa, Kotra and Kumbhalgarh than in India, Rajasthan and the study districts.

Table 3.8: Characteristics of the population of each block as a percentage of the total population (GOI, 2011a)

		Girwa	**Kotra**	**Khamnor**	**Kumbhalgarh**
Population		289,070	230,532	202,715	144,231
Location (% of the population)	Urban	1.5	0	2.2	0
	Rural	98.5	100	97.8	100
Gender (% of the population)	Male	51	50.6	50.2	48.8
	Female	49	49.4	49.8	51.2
Caste (% of the population)	SC	4.5	0.7	10.1	9.0
	ST	58.9	95.8	24.8	29.9
	Household size	4.8	5.5	4.7	4.4
Literacy Rate (% of the population)	Total	49.6	20.1	51.5	43.7
	Male	61.4	27.5	64.2	56.6
	Female	37.3	12.5	38.7	31.5
	Urban	63.2	-	66.8	-
	Rural	49.4	20.1	51.2	43.7
	Male rural	61.2	27.5	63.9	56.6
	Female rural	37.1	12.5	38.4	31.5
Workforce (% of the population)	Participate	41.7	51.4	53.8	51.2
	Main work	64.2	56.3	60.2	57.4

Overall, one can say that Kotra is the least 'developed' block, followed by Kumbhalgarh, Khamnor and Girwa.

3.2.4 The Sampled Locations

I sampled 43 schools and their respective catchment areas (see Section 3.3.4). Of the 43 schools, five were in Udaipur, two were in the town of Nathdwara and the remaining 35 were in rural locations. Figures 3.10-3.13 illustrate the geography of the sampled rural locations.

Figure 3.10: Case Study 2: The view from the village located 7km from school

Figure 3.11: Case Study 2: The outskirts of the main village.

Figure 3.12: Case Study 3, Kotra Block

Figure 3.13: The area around School 40, Kumbhalgarh

In Table 3.9, I present a summary of the key characteristics of the population in the sampled locations. The table includes the range of values and the location for each and the average values by block. I provide a complete dataset in Appendix C.1. Notably, the majority of the population in the sampled locations in Kotra are ST and literacy levels are particularly low. At locations 14 and 15, female literacy was just 5.5%. In the six urban locations, on average 96.7% of people were engaged in 'other' occupations. Across the rural locations, on average 46.5% of the population were cultivators, 24.6% were agricultural labourers, 2.5% were engaged in household industries and 26.4% had other forms of employment.

Table 3.9: Characteristics of sampled locations: range and average by block (GOI, 2011a)

	Minimum (location number)	Maximum (location number)	Averages for sampled locations by block			
			Girwa	Kotra	Khamnor	Kumbhalgarh
Population	224 (6)	9,112 (1)	3,975	2,585	1,907	1,445
Household Size	4.2 (34, 42, 43)	6.5 (14)	4.9	5.6	4.8	4.4
Male (% of the population)	45.8 (36)	59.1 (2)	52.3	51.1	50.6	48.1
<6 years (% of the population)	8.6 (2)	26.8 (8)	14.0	23.5	15.7	16.3
SC (% of the population)	0 (multiple)	38.8 (6)	8.2	1.1	7.0	6.9
ST (% of the population)	0 (7, 40)	100 (21)	30.6	85.4	24.7	25.3
Literacy Rate (% of the population)	10. 9 (15)	84.5 (2)	60.6	23.1	54.2	44.5
Female Literacy Rate (% of women)	5.5 (14, 15)	78.2 (2)	51.6	16.8	43.2	33.4
In employment (% of the population)	32.4 (3, 4)	74.3 (16)	38.5	48.3	50.6	48.2
Main work (% of the population)	5.1 (21)	97 (11)	79.8	52.5	64.1	53.3

3.2.5 The Case Studies

In the second stage of the research, I conducted four case studies of schools and their catchment areas. These case studies were selected from the 43 sampled schools. The case study (CS) schools were schools four (CS1), seven (CS2), 14 (CS3) and 26 (CS4). The four case study locations were chosen, in part, due to their different geographical contexts. CS1 was in Udaipur city. CS2 was in rural Girwa, one hour's drive from Udaipur. CS3 was in Kotra and was the most remote of the four case studies, located 60km and a two-hour drive from Udaipur city. CS4 was in Khamnor, 44 km from Udaipur city. In Table 3.10, I present demographic and socio-economic information about the four locations. Notably, CS3 has the largest household size, the lowest proportion of females, the highest proportion of STs and the lowest literacy rates. In the first two case studies, the majority of people work for more than six months a year, whereas in the third and fourth the majority work for between three and six months. The main type of employment varies.

Table 3.10: Comparison of the locations of the case studies (GOI, 2011a).

		CS1	**CS2**	**CS3**	**CS4**
Households	Number of households	716	113	62	264
	Population	3,314	552	405	1,202
	Household Size	4.6	4.9	6.5	4.6
Demographics (% of the population)	Males	52.3	48.6	54.3	46.5
	< 6 years	11.6	12.7	24.9	17.1
	SC	1.6	38.8	0	0
	ST	1.6	0	99.5	22.3
Literacy Rates	Total (% of the population)	80.8	52.5	19.8	42.4
	Male Literacy rate (%)	85.5	69.0	29.5	55.1
	Female Literacy Rate (%)	75.8	37	5.5	31.4
Employment (% of the population)	Engaged in Work	32.4	48.7	46.9	57.3
	Main work	93.2	90	7.4	5.7
	Marginal work 3-6 months	6.6	7.4	78.4	64
	Marginal work 0-3 months	0.2	2.6	14.2	30.3
	Cultivation	0.7	52.8	1.1	52.1
	Agricultural Labourers	0.5	0	97.9	14.2
	Household Industry	6.1	8.9	1.1	0.1
	Others	97.2	38.3	0	33.5

The above indicates potential variation in the severity of food insecurity between blocks and between sampled locations. The extent of food security in these locations is examined in Section 5.2.2. Overall, the indicators above show thatCS3 is the least 'developed', followed by CS4, CS2 and CS1.

3.3 The Methodology

3.3.1 Introduction

This research sought to explore the experiences and perspectives of the rights-holders, their representatives and the duty bearers in the MDMS. To do this, a range of methods were employed, including: surveys of households (*n*=724), teachers (*n*=43), cooks (*n*=31) and students (*n*=349); interviews with households (*n*=40); student essays (*n*=137); 24-hour food consumption recall with parents (*n*=424 cases)[12] and students (*n*=389 cases); and focus groups (*n*=8). I also conducted interviews with experts (*n*=43). I supplemented this primary research with document and media analysis. In the following, I detail how this approach was implemented and explain why and how methods were used.

3.3.2 Practicalities

Language

The lingua franca in the study area is Rajasthani. Mewari is the most commonly spoken dialect. Hindi is, however, spoken widely. Rajasthani and Hindi are similar; they use the Devanagari script, have a near identical grammar and share much vocabulary. Instruction in Rajasthani or Mewari is also difficult to access in the UK. Therefore, learning Hindi was a sensible choice. By the time I embarked upon fieldwork, I could read and speak Hindi confidently, though not fluently. Although this knowledge of Hindi proved invaluable, languages and dialects varied considerably between villages, to the extent that at school 16, teachers who were not from the village struggled to communicate with the cooks who were. To solve this problem, I employed two research assistants who acted as translators. Although translators make research more expensive and time-consuming, can inhibit flow and can detrimentally affect relationships with participants (Bujra, 2006; Müller, 2007; Watson, 2004), they were necessary for this project. Of course, translators are not neutral conveyors of information (Temple, 2002). To minimise this limitation as far as possible, I repeatedly told my research assistants to translate verbatim, and reflected on their influence throughout. Due to the similarities with Hindi, I could check what was being said.

With the exception of the interviews with government officials, I conducted expert interviews in English. Hindi, Mewari and *Adivasi* languages were used for all other methods. My research assistants translated all questions from English into Mewari and then adapted them to local languages as necessary. Closed questions were recorded as codes and open-ended questions were recorded in

[12] As the same respondent did three recalls (three days), the term 'cases' is used to denote the total number of days covered.

English, with the occasional word or phrase in Hindi. Student surveys and essays were asked and answered in Hindi.

Assistants

I employed two research assistants; one male and one female to ensure that both men and women could comfortably participate in the research. Having two research assistants also minimised the risks associated with the fieldwork and allowed research to be undertaken when I was not present. A local NGO helped me to find my first assistant, Pooja. She then introduced me to the second, Kamlesh. There was a brief period when Kamlesh could not work, during which I hired another assistant, Vinod. All three had previous experience working as research assistants. I also interviewed other candidates who were unsuitable. Although my research assistants lived in Udaipur, they were from 'the village' (i.e. rural Rajasthan) and were familiar with rural life. This meant the research participants were more likely to accept them and, by proxy, me. Although I did not consider caste when I employed them, they also belonged to different castes. On the odd occasion that caste was mentioned, participants were happy to learn an assistant was from the same caste as them. Pooja and Kamlesh's knowledge of the local area also proved invaluable.

Risks

The Department of Geography at the University of Cambridge approved a risk assessment before the fieldwork began. Despite taking necessary precautions to minimise risks throughout the fieldwork, there were two occasions when risks were especially high. On arrival at school six, we were informed that a few days earlier cars on the only road to the village had been stopped and the passengers had been violently robbed. When we left, we encountered the aftermath of such an event. We got through unharmed and decided not to return. On the second occasion, we visited a hamlet where a potential respondent was drunk and aggressive. We quickly left and decided not to include the school in the sample.

3.3.3 Research Design

Approach

To answer the research questions outlined in Section 2.8, quantitative and qualitative approaches were required. I therefore adopted a pragmatic mixed-methods approach. A pragmatic approach is based on the premise that quantitative and qualitative research are not inherently incompatible; that 'all human inquiry involves imagination and interpretation, intentions and values but must also necessarily be grounded in empirical embodied experience' (Yardley and Bishop, 2008: 355). In a pragmatic

approach, research questions drive the choice of methods (Onwuegbuzie and Leech, 2005) and quantitative and qualitative methods, techniques, approaches and concepts are combined (Johnson and Onwuegbuzie, 2004). The value of mixed-methods research has been recognised within geography (for example: Hamnett, 2003; McKendrick, 1999; Philip, 1998) as well as in the study of food security (Coates *et al*., 2006). I used mixed methods to triangulate information, for clarification and elaboration, to inform subsequent methods and to expand the inquiry to include all dimensions of food security and a right to food (see Greene *et al*., 1989). I used qualitative and quantitative methods equally and concurrently, taking a 'fully interactive approach' (Morse, 1990; 2003; Teddlie and Tashakkori, 2009). The research strategy was designed to provide triangulation not only of methods, but also of investigators and data (Denzin, 1978).

Chronology

Fieldwork was conducted between August 2014 and July 2015. I began my fieldwork in Rajasthan by visiting two schools with an NGO worker; one in Udaipur city and one in a rural location. These trips provided an initial understanding of how the scheme functions which informed my research strategy. After recruiting my research assistants, I undertook a pilot study in two locations. The pilot study highlighted that my initial questionnaire was too long and that some questions required revision. The main period of fieldwork followed a three-part sequential design. The first stage focused on gaining a broad insight into how the MDMS functioned and was perceived by rights-holders, their representatives and duty-bearers. Between September and December 2014, I visited 43 schools and conducted household surveys in their respective catchment areas. The second stage, conducted between January and May 2015, focussed on gaining a deeper insight into the scheme. To do so, I focussed on four schools and their respective catchment areas. I used household surveys and 24-hour recall. The third stage was undertaken between May and July 2015 and examined the implications of the MDMS not being served in the summer vacation. I supplemented the research with interviews with experts and the analysis of documents and media reports. The research design involved repetition, asking the same survey and repeating measures. Therefore, after a few months, my research assistants were experienced in using the methods and I left them to conduct research when I was not present. This enabled me to occasionally spend days conducting interviews and to return to the UK in December 2014 and May and June 2015, when the research assistants conducted the research without my presence. Quality was controlled by frequent checks of progress and the data, and in the case of interviews, by checking recordings. I returned to India in July 2015 to finish conducting expert interviews in Delhi.

3.3.4 Stage One

School Interviews

As there can be more than one school in a single location, schools rather than locations were chosen as the starting point for the research. To permit some degree of generalisation, I randomly selected schools from a list of all MDM-eligible schools in the four sampled blocks. I selected 13 schools in each block. My aim was to visit the first 10; the remainder acted as back-up options in case certain schools were closed, inaccessible or unsafe. In total, I visited 47 schools. Three were closed bringing the total sample to 44; 23 in Udaipur and 21 in Rajsamand. The seventeenth and eighteenth schools visited were technically separate but were on the same grounds and shared a MDMS. Therefore, for analysis, these two schools were considered as one (school 17), bringing the sample to 43. Three more schools were sampled than originally intended. School 11 in Udaipur district was included to provide insight into the MDMS in a *Madarsa*. In Kotra, the sample included a boys' school. As households had children at the neighbouring girls' school as well, I also included the girls' school, bringing the total to 11. An eleventh school was included in Kumbhalgarh as, in my absence, my research assistants lost track of how many schools they had visited. A summary of the types of schools in the sample is provided in Table 3.11 (further details are provided in Appendix C.2). This sample is larger than most other studies on the MDMS (Section 2.2.4); however, the number of schools sampled is an obvious limitation of this research.

Table 3.11: The number of schools sampled

Type of School	Girwa	Kotra	Khamnor	Kumbhalgarh
Primary (1-5)	3	3	3	6
Upper Primary (1-8)	1	4	4	1
Girls Upper Primary*	2	1	1	1
Secondary (1-10)	2	0	1	1
Senior Secondary (1-12)	2	2	0	1
Shiksha Karmi[13]	0	1	1	1
Madarsa	1	0	0	0
Total	**11**	**11**	**10**	**11**
Total number of schools in the block (2014)	**433**	**359**	**301**	**397**
Percentage visited	**2.5**	**3.1**	**3.7**	**2.8**

*Mixed in grades I-V, girls only in grades VI-VIII.

[13] Due to the difficultly of getting formally trained teachers to teach in remote areas, the *Shiksha Karmi* initiative was started in 1987. *Shiksha Karmis* (education workers), typically from the local area with only a school-level education, were employed as teachers (Ramachandran and Sethi, 2001).

I obtained permission to conduct research in schools from the District Education Officers (DEOs). I also informed each block education office about the research. On arrival at each school, we explained the purpose of the research and presented permission letters from the DEOs. After receiving permission from the head-teacher, we interviewed the head-teacher and/or the teacher responsible for the MDMS (known as the 'Midday-meal-in-charge'). To collect standardised information, I completed a form (Appendix C.3), which covered the food served, the organisation of the scheme and teachers' opinions. I followed up on certain topics, such as the closure of the centralised kitchen in Girwa, and recorded responses using supplementary notes.

Cook Surveys

At each decentralised school, we asked one of the cooks a series of questions to verify what the teacher had told us and to explore the cook's perspective (n=31). As most cooks were busy and shy, a structured interview was used and answers recorded on a standard form (Appendix C.4). Where possible, surveys were conducted away from teachers to minimise the influence of the teacher on the cooks' responses.

Observation

During each school visit, we observed the MDM being served. I completed an observation checklist (Appendix C.5), detailing the infrastructure, organisation and the type of food served. Observation provided new information and allowed me to verify the information provided by teachers and cooks. These checklists were supplemented by additional notes, such as whether anything seemed altered by our presence. When there was enough food, we tasted the MDM and took notes.

Household Surveys

Household[14] surveys were conducted to assess parents' opinions and to determine rights-holders' backgrounds. I sampled students' households within the school catchment area. Ideally, I would have randomly sampled from a complete list of the addresses of all households with children enrolled at the school. Such a list was not available. Furthermore, the surrounding area had no street names and often, no streets. As true random sampling was impossible, we instead gauged how many houses were in the catchment area and where they were located, both by observation and by asking teachers. We then selected the households as randomly as possible. This method worked well in villages with a single school; however, it was more difficult to implement in urban locations where children from one street went to several different schools.

[14] Here, I use GOI's (2011a) definition of a household: those living under one roof and sharing food from the same kitchen.

When sampling, one is faced with the question of breadth or depth (Flick, 2014). At this stage in the research, breadth was necessary. The objective was not to generate data that could be applied to the entire population, but instead, to gain insight into how the MDMS was functioning in each location. I chose to survey 10 households in each location. A larger sample would surely have improved the data; however, it would have compromised the breadth of research by limiting the total number of sampled schools. Fewer than 10 households may not have provided sufficient insight into each location. On reflection, I consider 10 households to have been sufficient. In total, 431 households were surveyed in the first stage. Access to households was negotiated individually. Households that did not wish to participate were not surveyed.

All household surveys were conducted as structured interviews (Appendix C.6). Surveys conducted in this manner provide simple and straightforward insight into attitudes, allow generalisation and data standardisation and allow the interviewer to clarify points; however, the surveys can be affected by the interviewer's competency and responses may be influenced by respondents not being anonymous (Robson, 2011). Despite these limitations, it was not possible to use written questionnaires due to high levels of illiteracy (see Section 5.2.1). We tried to minimise the limitations associated with interviews by standardising questions and emphasising anonymity. Typically, one of my assistants conducted the interview, one recorded the answers and I took notes. The surveys included classification questions about the respondent and household, factual questions concerning food consumption and MDMS use, opinion questions concerning the scheme and open questions regarding grievances and satisfaction with the MDMS (May, 2001). The survey was created following the widely recognised guidelines on wording questions (Robson, 2011); short, simple questions were used and leading or negative questions were avoided.

To minimise risks, I conducted household surveys during daylight hours only. Consequently, households in which all adults worked during the day were excluded from the sample. This is a key limitation of all the household surveys conducted.

3.3.5 Measuring Food Security

As indicated in Section 3.2.2, existing measures of district-level food security are now out-dated. Moreover, here I aimed to examine the food security levels of the sample of rights-holders rather than the population. For these reasons, the household surveys included measures of food security. The multiple methods that can be used to assess food security are reviewed in Appendix C.7. In this study, I used the Food Consumption Score (FCS) and the Household Food Insecurity Access Scale (HFIAS).

Food Consumption

The FCS method involves asking participants on how many days in the previous seven days they have consumed food from nine food groups. The frequency, between zero and seven is recorded. A weight is given to each food group (Table 3.12) that reflects the quantity of energy, protein and micronutrients (Jones *et al*., 2013). The frequency is multiplied by the weight and all are added to give a score. The food source (e.g. own production) is also recorded.

Table 3.12: Food consumption score groups and weights (WFP, 2008)

Food Group	Weight
Staples	2
Pulses	3
Vegetables	1
Fruit	1
Meat, fish and eggs	4
Milk	4
Sugar	0.5
Oil	0.5
Condiments	0

The maximum score (when all food groups are consumed daily) is 112. Households can be placed into three categories according to their score (Table 3.13). When oil and sugar are homogenously consumed regularly, modified cut-offs are used (Jones *et al.,* 2013; WFP, 2008). One can also conduct cluster analysis of the FCS data to determine whether there are trends in food consumption.

Table 3.13: FCS cut-offs

Food Consumption	Standard	Modified
Poor	0-21	0-28
Borderline	21.5-35	28.5-42
Acceptable	35+	42+

The WFP have used the FCS method to allow quick decisions to be made regarding food security interventions, particularly in sub-Saharan Africa (Jones *et al*., 2013; WFP, 2008). I employed the FCS method as it provides insight into both dietary diversity and the frequency of food consumption (Jones *et al*., 2013; WFP, 2008), correlates with calorie intake and dietary diversity (Kennedy *et al*., 2010; WFP, 2008; Wiesmann *et al*., 2009), is standardised (WFP, 2008) and is easy for participants to understand (Wiesmann *et al*., 2009). Indeed, participants had no trouble understanding and answering the questions, even if they often found the process amusing.

Using the FCS method in this study, however, is complicated by the greater dietary diversity in South Asia than in sub-Saharan Africa, which may not indicate greater food security (Smith and Wiesmann, 2007; Wiesmann *et al*., 2009). The Indian context also differs due to the high rates of vegetarianism. I discuss these issues further in Appendix C.7. Due to these limitations, the FCS data presented here should not be compared to results from other studies. Furthermore, due to the influence of greater dietary diversity on the overall scores, I have steered away from using the FCS to indicate poor, borderline and acceptable consumption. Instead, I use the FCS to show overall patterns of consumption. 24-hour food consumption recall was also conducted (Section 3.3.6) to verify data from the FCS.

Food Insecurity

The HFIAS is an adapted version of the US Household Food Security Survey Module[15], for use in low- and middle-income countries. The survey assumes that experiences of food insecurity share many commonalities across cultures. The survey assesses how frequently nine experiences of food insecurity were encountered in the previous four weeks. These nine questions are grouped into three domains (Table 3.14).

Table 3.14: HFIAS questions (Coates *et al*., 2007: 5).

Domain	Questions
1. Anxiety/uncertainty about food	1. Did you worry that your household would not have enough food?
2. Insufficient quality	2. Were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources? 3. Did you or any household member have to eat a limited variety of foods due to a lack of resources? 4. Did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?
3. Insufficient food intake and its physical consequences.	5. Did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food? 6. Did you or any household member have to eat fewer meals in a day because there was not enough food? 7. Was there ever no food to eat of any kind in your household because of a lack of resources to get food? 8. Did you or any household member go to sleep at night hungry because there was not enough food? 9. Did you or any household member go a whole day and night without eating anything because there was not enough food?

[15] An 18-question experiential survey used in the US.

If the person being surveyed answers affirmatively, the frequency with which the situation described in each question was experienced is recorded. Frequency is classified as rarely (once or twice), sometimes (three to 10 times) and often (more than 10 times). These frequencies are respectively allocated the numbers one, two and three. The sum of the frequencies generates a score. The lowest possible score is zero and the highest is 27 (Coates *et al*., 2007). Households are then categorised as food secure and mildly, moderately or severely food insecure based on the pattern of answers (Table 3.15). As the severity of the situation increases with each question, one expects that the number of people answering affirmatively and that the frequency reported decrease for each question.

Table 3.15: Categories of food insecurity (access) from Coates *et al*. (2007: 20)

Question	**Frequency**		
	Rarely	**Sometimes**	**Often**
1	Secure	Mildly	Mildly
2	Mildly	Mildly	Mildly
3	Mildly	Moderately	Moderately
4	Mildly	Moderately	Moderately
5	Moderately	Moderately	Severely
6	Moderately	Moderately	Severely
7	Severely	Severely	Severely
8	Severely	Severely	Severely
9	Severely	Severely	Severely

The HFIAS is a demonstrably valid measure of food security (Gebreyesus *et al*., 2015; Maes *et al*. 2009) and provides results that are positively correlated with other food insecurity indicators (Desiere *et al*., 2015; Faber *et al*., 2008; Knueppel *et al*., 2009). The HFIAS has been found to provide a valid measure of food insecurity in India (Chatterjee *et al*., 2012) and has been successfully used by several researchers in India (Heylen *et al*., 2015; Srivastava *et al*., 2014; Tang *et al*. 2011). The method does, however, have limitations. In Burundi (Desiere *et al*., 2015) and Ethiopia (Maes *et al*., 2009), found that scores increased over time despite deteriorating access to food. The decreased scores were due to changing subjective assessments. This highlights the need to use more than one measure of food security.

In this study, I first discussed the appropriateness of the HFIAS questions with my research assistants. My assistants were initially confused by the differences between questions two, three and four. Once I had carefully explained the differences, there were no problems implementing the method. Coates *et al*. (2007) suggest that the survey should be conducted with the member of the household responsible

for preparing food, typically a female adult. Although we attempted to speak to the mother, if a man was present, as was common, they usually preferred to answer; this was a limitation of this study. In total, in household survey one (HS1), 224 respondents (52.2%) were male. In household survey two (HS2), 79 (50%) were male. How gender affects perceptions of food security in the study requires further study.

To assess validity, scores from the FCS and HFIAS were compared using a Spearman's rank correlation coefficient. In HS1, HFIAS scores were found to be significantly related to the FCS scores in HS1(r_s=-.52, p=<0.001) and HS2 (r_s=-.47, p=<0.001).

3.3.6 Stage Two

The second stage of the research focused on case studies. Multiple cases strengthen a study as they provide insight into different contexts (Yin, 2009). For this reason, I selected four case study schools and their catchment areas. From the list of schools sampled in the first stage, I removed schools that were in potentially dangerous locations, were more than two hours from Udaipur city or where the households had been very difficult to find. I then chose four that would permit comparisons between location and delivery mechanisms (Table 3.16).

Table 3.16: Case study locations

Characteristic	**CS1**	**CS2**	**CS3**	**CS4**
School Number	4	7	14	26
School Type	Girls' upper primary	Secondary	Primary	Upper Primary
Enrolment	79	240	42	118
Block	Girwa	Girwa	Kotra	Khamnor
District	Udaipur	Udaipur	Udaipur	Rajsamand
Urban/Rural	Urban	Rural	Very rural	Rural
Delivery Model	Decentralised (formerly centralised)	Decentralised	Decentralised	Centralised

School Visits

At each case study location, we visited the school daily whilst we were conducting research in the catchment area. At the school, we recorded attendance, the number of students and adults eating the meal, the food being served and the quantity of the raw ingredients used (n=54 days). I also weighed three cooked servings of the meal.

Household Surveys

Household surveys were conducted following the same selection procedure as in stage one. HS2 (Appendix C.6.2) repeated some questions from HS1, including the measures of food consumption and security. Questions on income and expenditure and 24-hour food consumption recall were also included. The aim was to conduct at least 40 surveys in each case study. This was impossible in CS3 because there were not enough households. In CS1 and CS2, more than 40 households were surveyed (Table 3.17); however, I deemed several surveys to be unreliable and removed them from the sample. I detail the proportion of households and children surveyed as a percentage of school enrolment in Table 3.17. CS2 covers the lowest percentage of enrolled children; due to higher enrolment in the school and inflated attendance and enrolment figures (Section 5.3.3). In CS3, attendance figures were higher than enrolment figures, and it is probable that some students that attended the school had not officially enrolled.

Table 3.17: Sample sizes, household survey two

Case Study	Household surveys		Children at case study school	School Enrolment	% of enrolled children's households covered by survey
	Original sample	Final sample			
CS1	43	37	43	79	54.4
CS2	41	38	46	240	19.2
CS3	36	36	50	42	119
CS4	50	50	75	118	63.6
Total	**170**	**161**	**214**	**479**	**44.7**

24-hour Recall

I conducted 24-hour food consumption recall with parents to determine the food the students consumed at home and thus to examine the MDM in the context of overall food consumption. The recall method requires first asking the respondent to list everything they ate and drank in a certain reference period, in this case the previous 24 hours. Details of food preparation and the quantity consumed are then recorded. I chose to conduct 24-hour food consumption recall as it allows the direct measurement of recent consumption (Pérez-Escamilla and Segall-Corrêa, 2008) and therefore could be used to determine food consumption at home. The aim was not to accurately calculate the macro and micronutrient content of diets, as this would have required the recalls to be extremely detailed and therefore time consuming and would also have required the skills of a nutritionist. Instead, the aim of the recall was to determine overall patterns of consumption.

Due to reliance on memory, the recall method is prone to high levels of measurement error (*ibid*). For this reason, I conducted the recall three times at each stage. To permit comparison of the MDMS with lunch at home, one reference day was a Sunday, i.e. the recall was conducted on a Monday. In this study, respondents were asked what their child ate in the previous 24 hours. The quantity of dishes such as vegetables was standardised using measuring cups. We also recorded the typical size of *rotis*. In total, recall data was recorded for 424 cases; 93 in CS1, 60 from CS2, 99 from CS3 and 172 from CS4. To avoid atypical consumption, days surrounding festivals were avoided. At the end of each recall, the respondent was asked whether the consumption reported was typical. When respondents reported atypical consumption, for example due to attendance at a wedding, the recall was excluded.

3.3.7 Research with Children

Geographers (e.g. Holloway and Valentine, 2004; Jeffrey and Dyson, 2008) and those studying food security (Nord and Bickel, 2002; Nord and Hopwood, 2007) have increasingly recognised the importance of considering children's views in research. Accompanying this surge of research on and with children, has been considerable discussion of appropriate research methods (e.g. Ansell *et al*, 2012; Barker and Weller, 2003; Morrow and Richards, 1996; Punch, 2002). Informed by this literature, my research with children considered the different interests and abilities of children and was flexible. During the preliminary and pilot visits to schools, I discussed the abilities of the students with teachers. From these discussions, it was apparent that the youngest children would be unable to participate as they could not write well and were shy. Research was therefore conducted with students in grade V and above.

Student Surveys

During the first stage of school visits, we asked one or two students in each school their opinion of the MDMS. This direct approach was unsuccessful as the students were shy and their answers were influenced by the teacher. I did not use this data. Instead, written questionnaires were used at the case study schools. The survey (Appendix C.8) collected information on the food consumption patterns of students and their opinions of the MDMS. Using a written method allows students to think about their answers and removes the pressure to provide a "correct" answer (Punch, 2002). The surveys were anonymous, to encourage honesty. Questions were simple to prevent confusion and the surveys short to prevent boredom. During the data entry process, I discarded any surveys that had been completed incorrectly. In total, 349 surveys were included in the analysis; 62 from CS1, 150 from CS2, 22 from CS3 and 115 from CS4.

24-hour Recall

24-hour food consumption recall was also conducted with students. Students wrote down their recall, as asking each student directly would have been too time-consuming and our involvement may have affected their answers. We carefully explained the exercise to the students, who took to it quickly. As with the recall conducted with parents, we completed the exercise three times and one reference day was a Sunday. In total, 389 "days" of recall were included in the final analysis; 124 from CS1, 102 from CS2, 40 from CS3 and 123 from CS4. Partial, illegible and clearly dishonest forms were excluded. At CS4, a teacher had completed the forms. Consequently, I discarded these forms and repeated the exercise. Although inconvenient, this showed that the teacher had no idea what the students ate at home.

Essays

Essays can provide a large amount of data easily and have been shown to work well with literate children (Johnston, 2008). I therefore used essays to gain a deeper insight into children's opinions of the MDMS. To encourage the students to give time and attention to essay-writing, I awarded a small prize for the most detailed essay. It was necessary to obtain permission from teachers to do all exercises, particularly the essay-writing which was time-consuming. Unfortunately, teachers in two schools used this warning to alter the results. In CS2, teachers told students in grades VI-VIII what to write (i.e. 'The food in our school is very good'). These essays were easy to identify and were excluded. At CS4, one teacher wrote the essays himself whilst my research assistants were in another classroom. I excluded these essays and my assistants returned and repeated the exercise. The total number of essays collected and used are detailed in Table 3.18. An example of an essay is provided in Appendix C.9.

Table 3.18: Number of essays collected and included in the sample

Case study	Total	Final sample
CS1	41	41
CS2	108	47
CS3	12	12
CS4	66	37
Total	**227**	**137**

Research was only conducted with children in school. Consequently, children not attending or not enrolled were excluded. Considering time constraints and practicalities, it was not feasible to try and locate these children. Including the voices of these children is a potential, and I believe, an important avenue for future research.

3.3.8 Stage Three

Household Surveys

To explore experiences in the summer, another household survey (Appendix C.6.3) was conducted with the same households as HS2. The HFIAS and FCS were also repeated, to enable temporal comparison. Specific questions about experiences during the summer vacation were also asked. Respondents were also asked their opinion of eggs in the MDMS, an issue raised during the expert interviews. As some participants were not present during the third stage of research, the sample size was smaller for household survey three (HS3) than HS2 (Table 3.19).

Table 3.19: Sample sizes in the second and third household surveys

Case Study	HS2	HS3
CS1	37	29
CS2	38	37
CS3	36	36
CS4	50	30
Total	**161**	**132**

24-hour Recall

Food recall was repeated to assess food intake during the summer. The recall was conducted twice as there was no need to compare school days and non-school days. In total, 293 cases of recall were conducted; 70 in CS1, 75 in CS2, 105 in CS3 and 43 in CS4.

Interviews

To further explore perceptions of the MDMS and experiences of food insecurity, we conducted 10 interviews with selected participants at each case study (n=40). Interviews were conducted at this point in the research as sufficient rapport had been established with interviewees. Interviews were semi-structured, as the research at this point required depth and flexibility not sufficiently offered by structured interviews (Tracy, 2013). We used an interview guide, which covered the impact of the MDMS, what happened during the summer vacation and household's access to food. Interviews were recorded and subsequently translated by my research assistants.

Focus Groups

Two focus groups were conducted in each case study. Each group had four or five participants; a manageable number and a small enough group to allow personal accounts to be uncovered (Barbour,

2007). The topics covered were: school attendance, discrimination, the quantity and quality of the MDMS and household food consumption. The group discussions were useful to examine areas of consensus and disagreement among the participants (Tracy, 2013; Valentine, 2005).

3.3.9 Additional Methods

Visits to Centralised Kitchens

An aim of this research was to examine the decentralised and centralised models of delivery. To gain further insight into the latter, I visited two centralised kitchens, one in Jaipur and the other in Nathdwara. These visits were undertaken to understand how centralised kitchens function, from discussions with the kitchen managerial staff and observation. Centralised kitchens are known to be hard to find and/or their staff reluctant to speak to researchers (Samson *et al.,* 2008; Shankar and Natasha, 2010). After I had approval from head-office, access was not a problem. Gaining access to other centralised kitchens, however, proved difficult. I had intended to visit centralised kitchens in Delhi; however, the contact details of the NGOs were hard to find. Even when contact details were found, organisations did not reply. I did, however, visit an NGO-run ICDS kitchen in Delhi, which provided insight into a smaller-scale centralised cooking facility.

Expert Interviews

Here, an 'expert' is defined as those possessing 'technical, process and interpretative knowledge that refers to a specific field of action, by virtue of the fact that the experts acts in a relevant way, (for example, in a particular organizational field)' (Bogner and Menz, 2009: 54). At the beginning of the research, some interviews had an exploratory purpose; however, most interviews were systematic, used to access the specialised knowledge of the expert to obtain systematic information (*ibid*). In total, I conducted 43 interviews (Table 3.20). I purposefully sampled interviewees according to their position and expertise on the MDMS.

Table 3.20: Expert Interviewees

Interviewee		**Number of Interviews**
Government official	Block	4
	District	6
	State	1
	National	1
Bureaucrat		4
Academic/Researcher		13
Activist		1
NGO		12
Journalist		1
Total		**43**

I conducted interviews in Udaipur, Jaipur, Delhi and London. The majority of interviews were conducted in April and July, 2015. The interviews were semi-structured. When appropriate and when permission was granted, interviews were recorded. Otherwise, I took detailed notes.

Documents

I obtained MDMS records from schools and block and district officials to provide information on a larger number of schools (see Table 3.21). The ease of accessing this information varied, due to the adequacy of record-keeping in schools and the reluctance of some schools and offices to share information.

Table 3.21: MDM Records

Type of record	Information		Number of days covered by the records
School-level MDM record	Attendance, grain use	CS1	21
		CS2	67
		CS3	34
		CS4	460
		School 23	132
		School 24	196
		School 25	223
		School 29	191
		Total	**1324**
Yearly school forms	Attendance, MDM consumption, grain use, the number of cooks	Girwa	269 schools
Monitoring data	Schools visited, infrastructure, implementation, food served, cleanliness	Girwa	108
		Kumbhalgarh	71

To understand the design of the scheme and to provide an indication of the extent to which the findings in this study are applicable elsewhere, I also analysed documents produced by national and state level governments. Recognising that documents can not only inform decisions but also 'constitute particular readings of social events' (May, 2001: 176), documents were also used to understand how the scheme is perceived. The type and number of documents analysed are listed in Table 3.22.

Table 3.22: Government documents

Type	Year	Number
Guidelines/Orders	1995-2016	24
Annual Work Plan and Budget (write-up, tables and appraisal)	2015-2017	321
National Steering-cum-monitoring committee (Minutes)	2009-2016	10
Empowered committee (Minutes)	2014	2
Joint Review missions (Report)	2009-2016	46
Rajasthan half-yearly monitoring reports (Report)	2010-2015	23
Total		**426**

To permit comparison with larger trends, I have supplemented the primary data and data from documents with secondary data. When statistics on the population were needed, I have used data from the 2011 Census (GOI, 2011a). For figures relating to education, I have used data from the Unified

District Information System for Education (U-DISE), published by the National University of Educational Planning and Administration (NUEPA).

Media Reports

To examine safety and accountability, I analysed the content of media reports. I had originally intended to use the newspaper archives of six newspapers, including national and Rajasthani papers. However, online archives did not exist. Instead, I sourced articles using the newspaper search software, LexisNexis India. Electronic searches can generate false positives (a word has several meanings) and false negatives (a term is too precise) and remove the article from its context (Deacon, 2007). Furthermore, Lexis Nexis searches a selection of newspapers only. However, my intention was to analyse newspaper articles to gain an insight into instances of MDM-caused illness, rather than to count all instances as such information is already available (Barnagarwala, 2013; Thakur, 2016). For this, LexisNexis was sufficient. I searched for instances of 'Midday meal' or 'mid day meal' with 'sick', 'ill' or 'well', between 1 January 2002 and 4 September 2015. The search produced 908 results. I discarded irrelevant or duplicate reports, leaving 143 articles, which referred to 115 incidents. For each, I recorded the key details.

3.3.10 Data Entry and Analysis

I input data from observation, quantitative data from all surveys, recall and lunch measurements into Microsoft Excel. I then cleaned the data and analysed it in R. The statistical tests used are detailed as relevant in Chapters 5-8. I typed the qualitative data from surveys, interviews and focus groups into Microsoft Word. I then analysed these in Atlas.ti. I also analysed documents using this software. For all qualitative data, I initially conducted open coding; I read through the transcripts and documents several times and identified recurring themes. The initial coding framework included codes such as 'payment for CCHs [cook-cum-helpers] is too low' and 'payment for CCHs is delayed'. I then grouped these codes into categories, for example 'CCH Payment' and conducted coding using these categories. The only qualitative data not typed or analysed in this manner were the essays which were handwritten in Hindi. As typing in Devanagari script is difficult and the essays were easy to understand, I analysed the essays manually following the same coding method as for the digitised data.

3.3.11 Ethics

The Department of Geography granted this research ethical approval. Throughout, I adhered to the ethical standards of the Department, the University, the Economic and Social Research Council and the

Indian National Committee for Ethics in Social Science Research in Health. I conducted the research with complete transparency; the purpose, process and outcomes of the study were fully disclosed to participants. Research was only conducted with informed consent. To ensure informed consent was reality not rhetoric (Wiles *et al*., 2005), on arrival at each household, we explained who we were, the research aims, process and outcomes. We emphasised that we were independent and not working for the government or an NGO. Before beginning the work, we asked explicitly for verbal consent; written consent was inappropriate due to the low literacy levels. Some people did not want to speak to us and therefore were left alone. Others did not want to answer certain questions and therefore these questions were skipped. We also sought permission before taking photographs and efforts were made not to include the faces of children. It was necessary to record the names of respondents to enable us to return to households and to cross-reference data. This information has been stored securely and will be deleted once no longer necessary. To maintain the anonymity of participants, I have not included the names of any people or specific locations in this thesis.

The research adhered to the principles of non-maleficence and beneficence. We minimised disturbance by conducting research at suitable times and in suitable locations and minimised stress by avoiding particularly sensitive topics. We minimised any potential harm by ensuring anonymity. Ultimately, the direct benefits of my research for participants were limited, which I made clear. I was clear that just because they told me about problems, it did not mean I could fix them. Efforts were, however, made to bring some short-term benefits, without compromising the research. To show my gratitude for their participation in the research, I provided fruit at the case study schools, gave the occasional food item to children and households during surveys, provided snacks during focus groups and gave pens to the children and sporting equipment to the case study schools. We also shared knowledge when it transpired that people were not getting entitlements, particularly widows who were not receiving their pensions. At CS1, we also visited government offices on behalf of two widows.

The research highlighted irregularity in the implementation of the MDMS. Reporting every deviation would have repercussions for the teachers, which would have compromised my relationship with them. However, when school 15 was found to have not served the MDM for over a month, to adhere to the principle of beneficence, I clearly had to do something. Some villagers knew they had to complain to the Block Education Officer (BEO), but due to their illiteracy, they could not write the necessary letter. We therefore wrote what they dictated and told them what to do with the letter. By the time we returned to this village, the meal was being provided again. At the end of the fieldwork, we also informed the block and district level officials which schools were not providing the MDM.

The ethical considerations above apply to children; however, specific issues arise from the competency and vulnerability of children (Morrow and Richards, 1996). Informed consent for children's

participation was sought from the teachers. The purpose and content of the research was also carefully explained to the children in the local language and they were encouraged to ask questions. Luckily, the safety of the children was never found to be at risk and thus confidentiality did not have to be broken. To minimise any negative outcomes and to maximise enjoyment, the methodology was chosen according to children's needs, competencies and culture (*ibid*).

3.3.12 Positionality

How my position influenced the research process varied. Narayan's (1993: 671-672) oft-cited description of positionality is apt here:

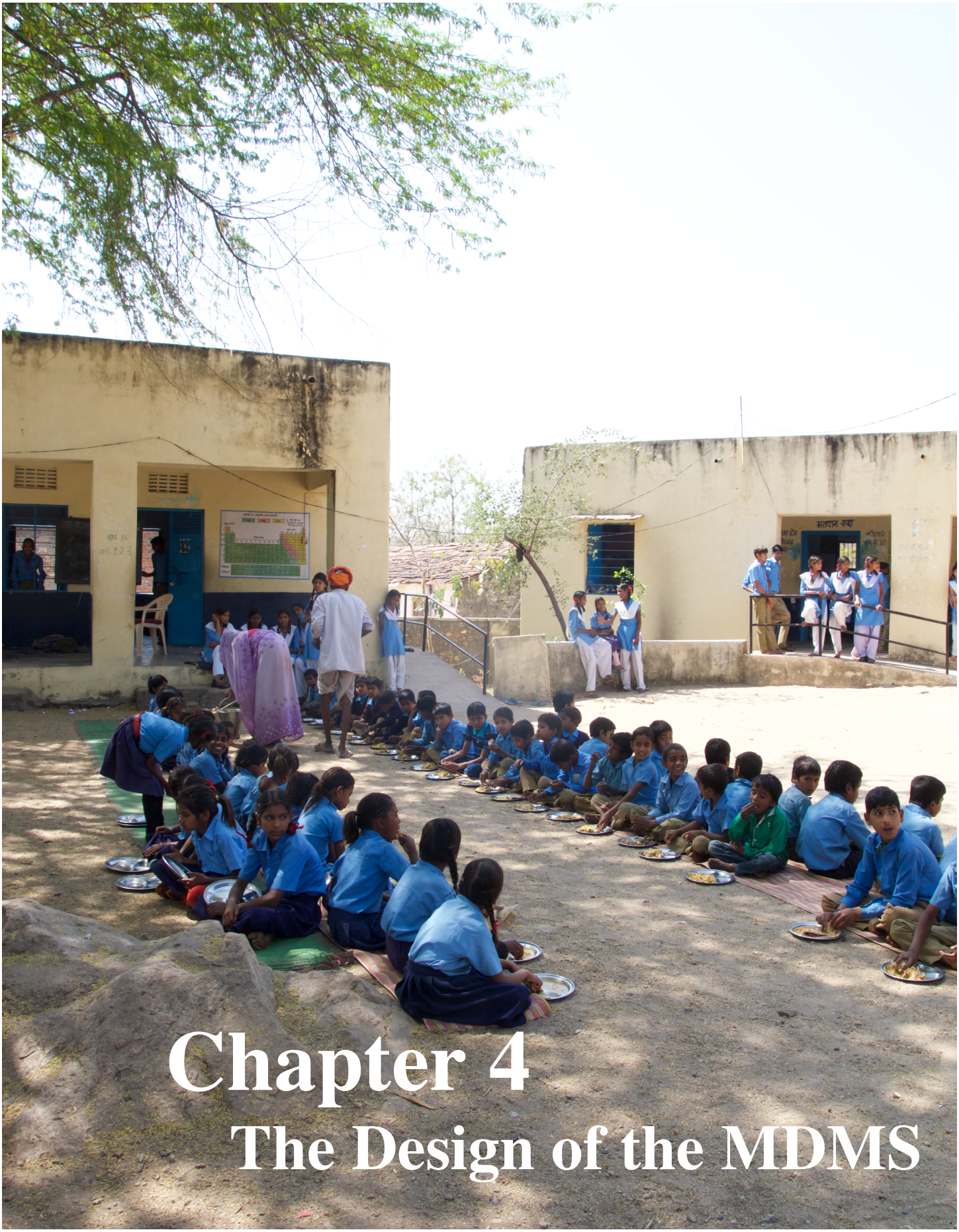
> The loci along which we are aligned with or set apart from those whom we study are multiple and in flux. Factors such as education, gender, sexual orientation, class, race or sheer duration of contact may at times outweigh the cultural identity we associate with insider or outsider status.

Position is about more than being an 'insider' or 'outsider'; these categories are relative, changeable and complex (Chacko, 2004; Merriam *et al*., 2016; Srivastava, 2006b; Sultana, 2007). Yet, as a white British female conducting research in rural Rajasthan, I was certainly an outsider. Although most participants could not comprehend where I was from, it was apparent that I was not local. I attempted to 'blend in' more, wearing traditional Indian clothing even if my assistants were wearing jeans and t-shirts; however, I would never fully blend in. Furthermore, as experienced by other researchers (e.g. Sherif, 2001; Stiedenroth, 2014), my marital status (unmarried) frequently came up during the research process and created confusion. My lack of caste and inability to speak the local language only added to the confusion. Using two research assistants who were 'insiders' was thus vital and I believe minimised the negative impact of my position on the data collection process as far as possible. Despite my position as an outsider, people were welcoming. Echoing Sultana's (2007) experience in Bangladesh, we were often treated as guests; offered the best seats and sometimes water, tea and food, which we were obliged to accept.

My position as an outsider in the school environment, however, differed. In the school environment, anyone not a teacher or government official was an outsider. Thus, both myself and my assistants were outsiders. Schools were often apprehensive about our presence, fearing repercussions. Consequently, some teachers altered their behaviour, for example providing a meal when they otherwise would not have. To minimise our impact on the MDM served as far as possible, in the first stage we conducted surprise visits to schools.

As was also found by Scott *et al*. (2006), my foreignness closed some doors but opened others. Being an outsider helped me gain access, such as to the officials needed to grant permission. Still, this was rarely easy. As found by others such as Kovàcs and Bose (2014), my gender affected the interview process. Often officials in Delhi and Udaipur were confused by my position as a young female researcher and gaining permission required persistence. In Rajsamand, officials were more welcoming. When conducting interviews with block and district-level officials, my status as a young female researcher created scepticism. Some men presumed that I knew little about the scheme. Consequently, a 'rhetorical interview' (Meuser and Nagal, 1991) often ensued, whereby the interviewer discussed the basics of the MDMS which I already knew. Although I was explicit about my position, some interviewees seemed determined to talk *at* me. As experienced by Sultana (2007), the 'othering' of me by such officials sometimes led to guarded and rushed interviews, which negatively impacted the richness and depth of the data collected. In others, I smiled and nodded for 30 minutes before proceeding to ask my questions.

Sometimes officials felt the need to assert their power, choosing to speak to Kamlesh instead of me. Although frustrating, in such situations I let Kamlesh take the lead. As experienced by Srivastava (2006b), my position at an elite university opened opportunities for me to speak to officials and academics. I expect this was also influenced by my status as a foreigner (Dam and Lunn, 2014). Experts were also welcoming as they shared a common interest in the research topic, which benefited the research by enabling rich and in-depth interviews.



Chapter 4
The Design of the MDMS

Chapter 4

The Design of the MDMS

4.1 Introduction

In this Chapter, I outline how the MDMS is designed and intended to function. I begin by examining the objectives of the MDMS. In the rest of the chapter, I examine the proceduralisation- 'the enacting of (legal or informal) laws and rules of procedure and access' (Harriss, 1991:4)- and the proposed allocation of resources within the MDMS. To do so, I consider the three components of a rights-system in turn, beginning with the rights-holders and their rights and followed by the duty-bearers and their duties and accountability mechanisms.

4.2 Rationale

4.2.1 Objectives

The GOI launched the National Programme of Nutritional Support to Primary Education (NP-NSPE) in 1995 in response to two problems: high levels of child malnutrition and non-universal elementary education (GOI, 1995b). The aim of the programme was to 'enhance the nutrition status of school-age children' and to 'hasten the march to universalisation of elementary education' (*ibid*: 6). The GOI anticipated that providing food at school would address the average nutritional deficit of 628 kcal and 6-7g of protein that had been identified in the 1991-1992 NNMB survey of eight states. The GOI perceived the scheme as a continuation of the efforts of the ICDS to address child malnutrition. The GOI also recognised that school feeding could compensate for the cost of education and therefore incentivise families to send their children to school (*ibid*).

In December 2004, the MHRD launched a revised NP-NPSE, that aimed to:

1. Boost universalisation of primary education (classes I-V) by improving enrolment, attendance, retention and learning levels of children, especially those belonging to disadvantaged sections,
2. Improve nutritional status of students of primary age, and
3. Provide nutritional support to students of primary stage in drought-affected areas during summer vacation also. (2004: 4)

With this revision, the MHRD expanded the educational aims of the MDMS and rendered it more than a means of encouraging enrolment. The provision of the meal in drought-affected areas during the summer vacation turned the MDMS into a safety net, intended to protect food consumption during drought. The 2004 guidelines also included several secondary objectives: the 'inculcation of hygienic habits, discipline, and spirit of equality among children' (MHRD, 2004: 11), as well as the provision of work experience for children, for example in account management or meal distribution. The guidelines also stated that the MDMS should be utilised for micronutrient supplementation and de-worming (*ibid*). Following the April 2004 Supreme Court Order, that 'In [the] appointment of cooks and helpers, preference shall be given to Dalits, Scheduled Castes and Scheduled Tribes', the MHRD also stated that preference in the employment of cooks should be given to women, particularly belonging to SCs and STs.

In 2006, the MHRD launched new guidelines, which have not since been updated. These guidelines state that the scheme's overarching objective is 'to address two of the most pressing problems for the majority of children in India… hunger and education' (2006: 6). The specific objectives are:

1. Improving the nutritional status of children in classes I-V in Government, Local Body and Government aided schools, and EGS [Education Guarantee Schools] and AIE [Alternative and Innovative Education] centres.
2. Encouraging poor children, belonging to disadvantaged sections, to attend school more regularly and help them concentrate on classroom activities.
3. Providing nutritional support to children of primary stage in drought-affected areas during summer vacation.

There is a tension in the 2006 Guidelines between the identified problem of hunger and the aim to improve nutrition. Hunger is 'a state, lasting for at least one year, of inability to acquire enough food, defined as a level of food intake insufficient to meet dietary energy requirements' (FAO, 2015). In

contrast, undernutrition refers to protein-energy malnutrition (PEM) and micronutrient deficiencies (*ibid*)[1]. Thus, one can give food to children to address their hunger, without addressing undernutrition.

The 2006 guidelines did not include the objective to increase enrolment; instead, attendance and classroom hunger became the focus of the educational objective. The 2006 guidelines also included secondary objectives. The MHRD considered the scheme capable of fostering equality between castes, class and genders. The guidelines also mention the provision of employment of women, although the specific involvement of SCs and STs is not mentioned. The MHRD described how the MDMS would be complemented by deworming and micronutrient supplementation (*ibid:* 25), a shift from the 2004 guidelines which stated that the MDMS would be utilised for these purposes. There is no reference in the 2006 guidelines to the provision of work experience. Overall, using the categories presented in Table 2.1, the MDMS is intended to protect consumption during droughts, to promote enhanced capabilities and to transform gender and caste relations.

The current objectives are inconsistently recognised by duty-bearers at the national level, highlighting the fact that the state is not one unitary actor. In their 2010 report on the NP-NSPE, the Public Accounts Committee (PAC) noted that, despite the changing objectives, the design of the MDMS had not changed. The report consequently argued that the objectives of the scheme were unclear. In response, the Secretary of the Department of School Education and Literacy (SE&L) stated that the Department has two programmes for the universalisation of primary education: *Sarva Shiksha Abhiyan*[2] (Education for All Campaign) and the MDMS. The Secretary went on to say:

> The objective of the Scheme is also to increase enrolment, attendance and retention, to improve nutritional status of the children in elementary schools, to decrease the number of drop-outs, to teach them hygienic practices, to develop the feeling of togetherness and social harmony because of the opportunity to eat together and to break social divide such as caste, gender community [sic] divides… There has been some rephrasing of the objectives in the revised guidelines of the Mid-Day Meal Scheme. But the basic purpose remains the same to address the class room hunger and to create an environment for universalisation of elementary education through addressing class room hunger. (in PAC, 2010: 7).

[1] These terms are discussed further in Appendix A.

[2] *Sarva Shiksha Abhiyan (SSA)*, launched in 2000, is the GOI's 'flagship programme for achievement of Universalization of Elementary Education' (GOI, 2016e). Initiatives of the campaign include opening new schools in locations without schools, improving school infrastructure, providing extra teachers and giving further training to teachers.

The Secretary's statement is at odds with the 2006 guidelines, which do not mention enrolment. The statement also suggests that addressing classroom hunger will encourage universalisation, based on the assumption that children do not attend school due to hunger.

Evident in the Secretary's statement is an overall emphasis on education. This focus on education is reflected in the scheme's administrative organisation. The MDMS is under the remit of the Department of SE&L in the MHRD; not the Ministry of Health and Family Welfare which is responsible for the National Rural Health Mission or the Ministry of Women and Child Development which is responsible for the ICDS. The MDMS therefore does not neatly fit into a single sector, such as nutrition policy and is not managed by a department of nutrition.

The MDMS's objectives are also inconsistently recognised across states. Each state/UT produces an Annual Work Plan and Budget (AWPB) which provides data on the previous year and a plan for the following. Of the 31 AWPBs in 2015-2016, 27 listed enrolment, attendance and retention as the MDMS's objectives, while three listed only two of these. Twenty-four AWPBs listed nutrition as an objective, typically in vague terms such as 'improving' or 'benefiting' nutrition. Eleven mentioned social benefits, particularly for the disadvantaged. Improved school performance is mentioned in eight. Malnutrition is explicitly mentioned only in the reports for Bihar (Government of Bihar, 2015), Tamil Nadu (Government of Tamil Nadu, 2015) and Telangana (Government of Telangana, 2015).

4.2.2 A Right to Food and Food Security

As outlined in Chapters 1 and 2, in 2001 the MDMS became a legal entitlement under a right to food and following the 2013 NFSA, became central to efforts to realise food security. These objectives are not, however, reflected in official discourse. References to either 'food security' or 'the right to food' are absent from the 2006 guidelines and the 2015 MDMS Rules (GOI, 2015a). The term 'food security' is found in just two AWPBs from 2015-2016: Andhra Pradesh (Government of Andhra Pradesh, 2015) and Telangana (Government of Telangana, 2015). The 'right to food' is not referred to in any of the AWPBs.

Consideration of the right to food and food security are also lacking in the conceptualisation of public policy. Food security is multi-dimensional; a product of food availability, access, utilisation and stability (See Appendix A.2.5). The schemes included in the NFSA primarily provide access to food. Although the importance of availability and utilisation are recognised in Schedule IV of the NFSA, little detail is provided. Section 31 of the NFSA states that the Central and State Governments should progressively realise access to:

a) safe and adequate drinking water and sanitation; (*b*) health care; (*c*) nutritional, health and education support to adolescent girls; (*d*) adequate pensions for senior citizens, persons with disability and single women'.

No further details on how the above might be achieved is provided in the Act. Notably, in the 2014 guidelines for the *Swach Bharat* (Clean India) initiative (Ministry of Urban Development, 2014), no reference is made to food security, the right to food or the NFSA. Thus, whilst the GOI recognises the multi-dimensional causes of food insecurity, the MDMS and the other schemes included in the NFSA focus primarily on the provision of food. Considering the MDMS in light of the discussion of the capability approach in Section 2.4.4, the scheme focusses on providing food to hungry people not nutritional functioning.

4.2.3 Measurement

Strikingly, the objectives outlined in both the 2004 and 2006 guidelines are vague; there is no mention of the extent to which nutrition should be improved and no timeline for the realisation of the objectives. Assessing the success or failure of the MDMS as earlier discussions of public policy were prone to do (Section 2.8), would therefore be difficult. For example, would a slight improvement in attendance or nutrition merit the label of 'success' or would a more substantial improvement be required?

Due to the conflation of the MDMS and SSA, the GOI has failed to monitor the outcomes of the MDMS. The PAC noted: 'the Ministry [MHRD] had not established any system to assess the outcome of the scheme in terms of well-defined parameters' (2010: 6). In response, the Secretary of SE&L stated that 'no separate mission has been created for the Mid-Day Meal Programme as it is seen as a programme that should serve the ends of the SSA' (in *ibid*: 7). The MHRD wrote: 'There are so many interventions, including Mid-Day Meal Scheme, to attract and retain children in schools. It will not be possible to analyse direct relationship [sic] between increase in school attendance and Mid-Day Meal Scheme. Further, the attendance in school is also dependent on several other factors' (in *ibid*: 9).

The nutritional impact of the scheme is also not measured. The MHRD also considered the measurement of nutrition to be the duty of the Ministry of Health and Family Welfare and that nutrition should be measured in the NFHS (PAC, 2010: 8). The NFHS, however, would only measure nutritional status rather than the nutritional impact of the MDMS. From this data, one might be able

to see district, state and national level trends in child nutrition, but it would be difficult to attribute these trends to the MDMS. Attempts are made to map the health of school children through the School Health Programme. According to the GOI (2013c), in the School Health programme children are screened bi-annually and, if necessary, are referred for further treatment. Indeed, during the course of the research, I saw records detailing the names, age, height and weight of children; however, these initiatives are not linked to the MDMS. It is not the case that if a child is identified as being malnourished then they receive a larger or a more nutritious MDM. Drawing on the discussion of biopolitics and data in Section 2.5.2, although the nutritional status of India's children is mapped through various surveys and data is collected on children at the school level, these findings are not connected to the MDMS. In the absence of such data, it is difficult to know the extent to which the MDMS has achieved its objectives.

4.3 Right-Holders

In 1995, the GOI argued that the NP-NPSE should not target the most disadvantaged children only, stating that 'one cannot and should not discriminate among children in the distribution of cooked food' (24). The GOI also recognised that the 'universal provision of food to all the students can be a potent solvent of social barriers and inhibitions' (*ibid:* 24). For this reason, the scheme covered all children at the primary level in government, local-body and government-aided schools; more than 96% of primary schools at the time. Other schools were not covered as most of them were 'either unrecognised or high fee charging schools catering to the better off families' (*ibid*: 27). There was an assumption that need and school category overlapped.

When the MDMS was launched, it was for children at the primary-level (grades I-V), although the future expansion to upper primary (grades VI-VIII) was seen as necessary for the universalisation of elementary education (*ibid*). The MDMS's coverage has expanded over time, as detailed in Table 4.1.

Table 4.1: Expansion in the coverage of the MDMS

Date	Group included
October 2002	The GOI launched the EGS and AIE initiative which created EGS and AIE centres to provide informal education to out-of-school-children without a school within 1km of their home. Students at EGSs and AIEs were automatically included in the MDMS
September 2007	All children at the upper primary level (MHRD, 2007)
April 2008	All children at *madarsas*/*maqtabs* recognised as government-aided or EGS/AIE interventions (MHRD, 2008)
October 2011	All children at National Child Labour Project (NCLP) schools - schools or rehabilitation centres for children previously engaged in labour (GOI, 2016b).

The NFSA (2013: Section 5.1.b) stipulated that:

> In the case of children, up to class VIII or within the age group of six to fourteen years, whichever is applicable, one mid-day meal, free of charge, everyday, except on school holidays, in all schools run by local bodies, Government and Government aided schools, so as to meet the nutritional standards specified in Schedule II.

In August 2014, the nomenclature was changed; EGS/AIE and NCLP schools were to be referred to as Special Training Centres. Therefore, 'the institutions to be covered under Mid Day Meal Scheme would be termed as Government schools, Government aided schools, Special Training Centres and *Madrasas* & *Maqtabs* supported under *Sarva Shiksha Abhiyan*' (MHRD, 2014).

Education in India has, however, changed since the MDMS was launched. In recent years, the number of private schools has risen dramatically. Between 2006-2014, enrolment in private schools increased from 18.7% of school-going children to 30.8% (Wadhwa, 2014). In particular, low-cost private education has expanded, especially in urban areas (Härmä, 2011; Tooley and Rangaraju, 2015). Fees at low-cost private schools range from just INR 80 per month to INR 800 (*The Economist*, 2015a; Thorat, 2011). The expansion of private education is attributed to the declining quality of government schools especially relative to private schools alongside an increased demand for education and an increased ability to pay (De *et al*., 2002; Härmä, 2011; Kingdon, 2007; PROBE, 1999). Even the Rajasthan Department of Education stated in their 2015 Public Private Partnership in School Education Policy that the 'quality of education in government schools has been deteriorating as

compared to private schools' and that there is 'better learning outcome [sic] in private schools' (Government of Rajasthan [GOR], 2015c: 1).

Private schools are not, however, accessible to all. Scholars (Härmä, 2011; Srivastava, 2006a; Tooley and Dixon, 2006; Vasavi, 2003) have found that children from certain groups, particularly traditionally lower castes, Muslims, Christians and girls are more likely to be enrolled in government schools than private schools. As noted by the Rajasthan Elementary Education Department, 'students from poorer sections of society are dependent on government schools for schooling' (GOR, 2015c: 1). The MHRD stated (in PAC, 2010: 8) that:

> It is generally understood that amongst the children attending Government schools, a large number belong to the disadvantaged social and economic groups of the society. It [the MDMS] serves the purpose of bringing the children of poor and disadvantaged groups to schools.

The MDMS is also targeted by grade/age. The NFSA stipulates that those up to grade VIII or age 14 are rights-holders 'as applicable'.

The NFSA also recognises the needs of specific groups, stating a 'special focus' should be given to 'the needs of the vulnerable groups especially in remote areas and other areas which are difficult to access, hilly and tribal areas for ensuring their food security' (*NFSA*, 2013: paragraph 38). The NFSA and 2015 Rules on the MDMS (GOI, 2015a) do not outline what a 'special focus' means in practice.

The identification of those in need of school-feeding in India differs from SFPs elsewhere. Individual or spatial targeting based on need does not occur; rather, targeting is based on the assumption that those who attend government schools are those in need. It is therefore necessary to understand whether this assumption is valid (see Chapter 5). Similarly to other SFPs, the MDMS is conditional on school-attendance; children not enrolled at school or not attending regularly cannot access the MDM. It is therefore necessary to understand the consequences of targeting and conditionality in the MDMS (Chapter 5).

4.4 Entitlements

4.4.1 Quantity and Nutritional Needs

The Quantity of Entitlements

When the MDMS was launched in 1995, the GOI stated that if given the choice between a hot meal, pre-cooked food and grains, hot meals are 'likely to be the most satisfying to the rural communities and is likely to have best [sic] outcomes' (1995b: 24). In 1995, local bodies were granted two years to provide cooked or pre-cooked food. Pre-cooked food was to be served in urban areas only as it was deemed inappropriate for rural areas due to difficulties of access, taste preferences and the associated higher costs (*ibid*). The food served in the scheme was expected to have the calorie equivalent of 100g of wheat or rice, per student, per day (*ibid*). Until local bodies could provide hot meals, 3kg of food grain were to be allocated per month to every student with a minimum attendance of 80%. The choice of food was left to local bodies.

The MDMS changed significantly following the 2001 Supreme Court Order, which ordered the provision of 'a prepared mid day meal with a minimum content of 300 calories and 8-12 grams of protein each day of school for a minimum of 200 days'. The conditionality of regular attendance was removed. The stipulated quantities of grain, calories and protein have since increased (Table 4.2).

Table 4.2: GOI food norms for the MDMS

Item	Primary level	1995	2004	2006	2007	2013
Grain (g)	Lower	100g	100	100	100	100
	Upper	NA	NA	NA	150	150
Calories (kcal)	Lower	Equivalent to 100g of grain	300	450	450	450
	Upper	NA	NA	NA	700	700
Protein (g)	Lower	Not specified	8-12	12	12	12
	Upper	NA	NA	NA	20	20
Micro-nutrients	Lower	Not stated	Not stated	Adequate Quantities	Adequate Quantities	Not stated
	Upper	NA	NA			

The 1995 guidelines stated that 'the endeavour should be to bridge the average nutritional gap of about 600 cal. through a balanced diet of cereals, pulses, oil and vegetables' (GOI, 1995b: 8), which constitute one third of daily calorie needs. The scheme was also intended to bridge the 6-7g deficit in

protein intake. The GOI assumed that 'if the energy gap is bridged, the protein gap will be automatically filled' (*ibid*: 8). The scheme was intended to cover 60-70% of the identified calorie gap (Section 4.2). The MHRD does not refer to the percentage of calorie intake to be fulfilled by the MDMS in the 2004 and 2006 guidelines, but do mention the provision occasionally. For example, in the report on the 2016 Joint Review Missions (JRMs)[3] the MHRD states: 'The programme aims at providing one meal out of the three meals for children in the schools which should provide at least one third of the calories and half of the protein of Recommended Daily Allowance' (2016e: 3). The MHRD assumes that the MDMS will supplement food at home and state that 'it needs to be explained to parents belonging to weaker sections that School Mid-Day Meal [sic] is meant to be in addition to, and not a substitute for meals' (2006: 19).

In 2009, the MHRD issued more precise guidelines on meal composition, detailed in Table 4.3.

Table 4.3: Meal Composition Guidelines (MHRD, 2009a)

Ingredient	**Amount for lower primary students (g)**	**Amount for upper primary students (g)**
Grain	100	150
Pulses	20	30
Vegetables (including green leafy vegetables)	50	75
Oil and fat	5	7.5

The MHRD stipulated that there should be 'adequate quantities of micronutrients like iron, folic acid, vitamin-A etc.' in the MDM (2006: 6); however, there is no further discussion of micronutrients in the 2006 guidelines or subsequent orders. It is unclear what might constitute an 'adequate quantity' and what the additional nutrients indicated by 'etc.' might be. As micronutrients are essential for child development (Section 2.2 1 and Appendix A) and are often lacking in the diets of Indian children (Section 4.4.6), it is surprising that the GOI has not considered the micronutrient content of the MDM in more depth.

Defining Need

The GOI have not published figures on the theoretical contribution of the MDM to recommended daily intake of calories, protein or each ingredient. My own calculations are provided in Appendix D.1 and summarised in Table 4.4. Due to the different needs of children by age and gender, the

[3] JRMs are a team of experts that visit sampled schools in selected districts in a state to rigorously assess the MDMS. The missions submit detailed reports on their findings to the GOI.

theoretical contribution of the MDM to RDAs varies considerably. The provision of one third of calories and half of protein requirements are inconsistently fulfilled across each group.

Table 4.4: Theoretical MDM contribution to RDA as defined by NIN (2011)

Group	Age Group	Theoretical MDM contribution to RDA (%)					
		Calories	Protein	Cereal	Pulses	Vegetables	Oil/fat
Boys and Girls	**4-6**	33.3	59.7	83.3	66.7	33.3	20
Boys and Girls	**7-9**	26.6	40.7	55.6	33.3	25	16.7
Boys	**10-12 (LP)**	20.5	30.1	33.3	33.3	16.7	14.3
	10-12 (UP)	32.0	50.1	50	50	25	21.4
Girls	**10-12 (LP)**	22.4	29.7	41.7	33.3	16.7	14.3
	10-12 (UP)	35.0	49.5	62.5	50	25	21.4
Boys	**13-15**	27.3	36.8	35.7	40	25	16.7
Girls	**13-15**	30.0	38.5	45.5	50	25	18.8

The specified quantity of calories, protein and each ingredient in the MDMS does reflect changes in need by age; upper primary school students receive more food than lower primary students. However, this two-fold distinction based on school grade (which may not overlap with age) is as complex as the interpretation of need gets in the MDMS. Differences in need by activity levels are also not considered. The RDAs published by the NIN (2011) do not account for activity level among children or any other variable that affects need such as health. The reason for this simplification of need is clear; the NIN seek to issue general guidelines. What this shows, however, is that even the theoretical contribution of the MDMS to meeting daily needs is difficult to assess.

Overall, there has been little attempt by the GOI to assess needs or the contributions that the MDMS can make to meeting these needs. Moreover, the consideration of needs that is present in the MDMS is top-down. There is thus the need to consider whether the MDMS contributes to both dietary and perceived needs (Chapter 6).

4.4.2 The Menu

The menu is decided by each State/UT government and varies considerably across India. For example, rice and *sambhar* are served alongside eggs in Tamil Nadu, whereas in Punjab, *dal* or vegetables are served with *roti* or rice. When the MDMS was launched in Rajasthan in 2001, *ghoogri* (boiled wheat) was served daily (Drèze and Goyal, 2003). Following the 2004 Supreme Court Order, schools started serving a more diverse and appetising menu. The current menu is shown in Table 4.5. Vegetables should be served four times per week and fruit once. Centralised kitchens must also provide something extra two days a week. The menu in Rajasthan is vegetarian. The food can be changed once per week according to local taste, although it is unclear as to who should define local taste; teachers or students.

Table 4.5: The MDM menu in Rajasthan (GOR, 2016d)

Day	**Decentralised**	**Centralised**
Monday	*Roti*, vegetables	*Roti*, vegetables, plain rice
Tuesday	Rice and *dal* with vegetables	*Roti*, *dal*, sweet rice
Wednesday	*Roti dal*	*Roti*, *dal* or *dal bati*
Thursday	*Khichdi* (*dal*, rice with vegetables)	*Roti*, vegetables and plain rice
Friday	*Roti dal*	*Khichdi* (rice, *dal* and vegetables)
Saturday	*Roti,* vegetables	*Roti,* vegetables
Additional items	One day food according to local taste. One day fruit	One day food served according to local taste. On two days something extra should be provided and it is mandatory to serve fruit on one day per week.

The quantities of ingredients and the calorie and protein content of the MDM per child per day as reported by the GOR are detailed in Table 4.6.

Table 4.6: Quantity and nutritional content of the MDM (GOR, 2014a)

Item	**Lower Primary**			**Upper Primary**		
	Quantity (g)	**Calories (kcal)**	**Protein (g)**	**Quantity (g)**	**Calories (kcal)**	**Protein (g)**
Grain	100	346	11.8	150	519	17.7
Pulse	20	67	4.5	30	100.5	6.75
Vegetables*	50	NA	0	75	NA	0
Oil	5	90	0	7.5	120	0
Total	**175**	**503**	**16.3**	**262.50**	**739.50**	**24.45**

* As there are 45 calories in 5g of oil, and 90 calories are listed, one can only assume that the calorie content of vegetables and oil have been combined.

Based on these figures (Table 4.3), one would deduce that the minimum quantities of energy and protein are reached and that the menu adheres to the national guidelines. However, the GOR's figures are misleading for two reasons. Firstly, the stated protein content of grain (11.8g per 100g) only applies to flour. Using the standard nutritive values of Indian food (Gopalan *et al*., 2014), the protein content of 100g of parboiled milled rice is 6.4g and raw rice is 6.8g. On the days that rice is served, the protein content would therefore be approximately 5g lower than the GOR suggests. Secondly, the information in Table 4.3 is based on the assumption that all food groups are served on the same day. However, from the state-level menu (Table 4.5) it is clear that this is not the case. When these facts are accounted for, the nutritional content of the food is lower (Table 4.7). The GOR specify that 100g of fruit should be provided once a week. On the days when fruit is served, the calorie content of the meal would be higher, for example by 71 kcal per 100g of grapes and 166 kcal per 100g of banana.

Table 4.7: Recalculated nutritional content of standard menu

Kitchen	**Menu**	**Calories (kcal)**		**Protein (g)**	
		Lower	**Upper**	**Lower**	**Upper**
Decentralised	*Roti*, vegetables	436	639	11.8	17.7
	Rice and *dal* with vegetables	503*	740*	11.3	17.0
	Roti, dal	413	620	16.3*	24.5*
	Khichdi (*dal*, rice with vegetables)	503*	739.5*	11.3	17.0
Centralised**	*Roti*, vegetables and rice	436	639	9.3	14.0
	Roti, *dal*, sweet rice	413	620	13.8*	20.7*
	Roti, *dal*	413	620	16.3*	24.5*
	Khichdi	503*	740*	11.3	17.0
	Roti and vegetables	436	639	11.8	17.7

*Indicates the norms are met.

** When *roti* and rice both feature it is assumed that 50g of *roti* and 50g of rice will be used. It has also been assumed that when *dal* or vegetables feature within other food such as dal or *khichdi*, the full quantity is to be used.

In Appendix D.1, I detail the potential contribution of the MDM in Rajasthan to the RDA of energy, protein and calories. Based on these calculations, if the MDM is served as per the government norms, then on the six days when the meal is served it should contribute between 20-33% of energy needs, 26-51% of protein needs, 33.3-83% of the RDA of cereal intake, 16.7-33% of pulse intake, 11-22% of vegetable intake, 11-21% of fat intake and 16.7% of fruit intake. The MDMS therefore theoretically contributes far more to cereal intake than the intake of any other food group. The contribution to micronutrient intake would vary significantly depending on the vegetables and fruit served, although the contribution to calcium, iron, vitamin A, dietary folate and zinc intake would typically be small.

Overall, for the RDAs of children to be met, two or three other well-balanced meals would need to be consumed at home. Milk and fruit would also need to be consumed at home.

4.4.3 Nutritious Extras

Some states/UTs provide additional items in the MDMS. Milk is provided in the MDMS in Gujarat, Kerala, Madhya Pradesh, Puducherry and as part of a breakfast program in Karnataka. Fruit is on the menu in Arunachal Pradesh, Nagaland, Rajasthan, Uttar Pradesh, Andaman and Nicobar Islands, Dadra and Nagar Haveli and in Daman and Diu. Elsewhere, these additional items may be provided at the discretion of district officials or School Management Committees (SMCs).[4] Eggs are provided in 13 states/UTs (Figure 4.1). Eggs are not on the menu in Rajasthan (see Section 6.6 for further discussion).

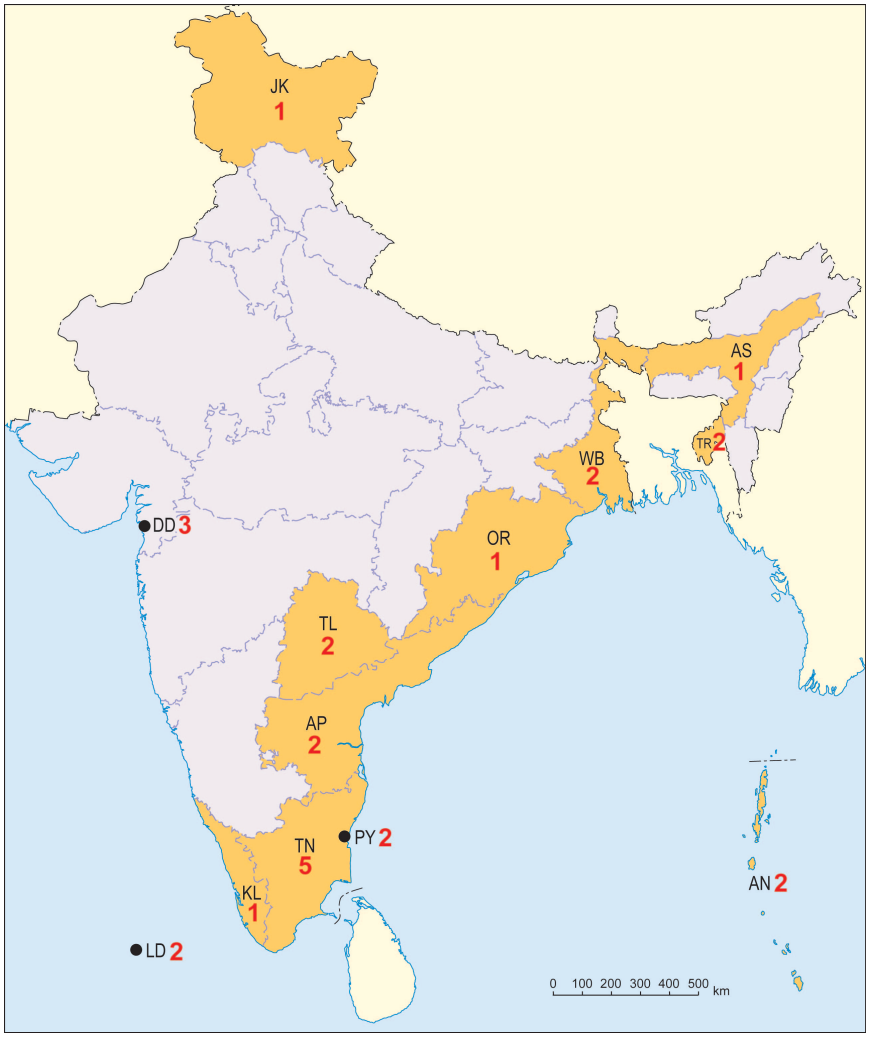


Figure 4.1: The states/UTs providing eggs in the MDMS and the number of eggs provided

[4] SMCs are explained in Section 4.6.2.

4.4.4 The Source

The GOI provides the grains (wheat and/or rice) for the MDMS (MHRD, 2006). There is little discussion in national and state government policy documents of where other ingredients should be sourced from. The 2006 guidelines and a small number of AWPBs mention the source of food only in reference to kitchen gardens at schools. In contrast to the increasing links between SFPs and agriculture evident in other countries (Section 2.5.2), the GOI and state governments have only infrequently considered the links between local agriculture and the MDMS.

4.4.5 Safety

In the 2006 guidelines, the MHRD set out a list of safety protocols for the MDMS. Among other things, the guidelines specify that: cooking should be done in a kitchen; a smokeless *chulha* (stove) should be used; fuel should be stored safely; as far as possible, firewood should not be used; staff should be trained in hygiene and handling fuel; the kitchen and storeroom should be clean and ingredients should be clean, free from adulteration and stored properly. In July 2013, 23 children died in Bihar after consuming a MDM contaminated with insecticide. Although the cook had complained that something was wrong with the food, the teacher encouraged her to continue cooking and to serve the meal (*The Indian Express*, 2016a). Shortly after this incident, the MHRD issued a letter reiterating the need to adhere to the safety practices outlined in the 2006 guidelines. The MHRD emphasised that teachers are required to taste food and that food should be stored safely.

In 2013, the NFSA stipulated that all meals should adhere to the 2006 *Food Safety and Standards Act*. The Food Safety Act specifies that no food business operator shall sell or distribute food which is 'unsafe', 'sub-standard or contains extraneous matter' (2006: 26). Anyone that does is liable to a penalty of up to INR 500,000 (*ibid*: 51) and anyone selling food unfit for human consumption is liable to a fine and imprisonment (*ibid*: 59). In February 2015, the MHRD issued 'The Guidelines on Food Safety and Hygiene for School level kitchens under Midday Meal'. These guidelines stipulate that the food in schools should be stored adequately, cleanliness should be maintained, CCHs should follow good hygiene practices and pests should be controlled. The guidelines also stipulate that children should wash their hands before consuming the MDM and that schools should have adequate infrastructure, including a clean, well-ventilated kitchen-cum-store, tested drinking water and waste disposal arrangements. The guidelines do not state who is responsible for ensuring that these conditions are fulfilled. The guidelines also conflate safety and nutrition, stating under the heading 'Food Safety Measures During Cooking', that 'recipes requiring fermentation and sprouted pulses

lead to increase in nutrition value' (MHRD, 2015b: 9). Finally, the guidelines are for school-level kitchens only; no safety guidelines exist for centralised kitchens.

4.5 Duty-Bearers

4.5.1 Introduction

The MDMS can be interpreted as the GOI directly fulfilling the right to food. Yet, of course the GOI and indeed any state is not one single entity. Furthermore, actors at all levels of government are involved in the management and implementation of the MDMS. In the following section, I outline who the duty-bearers are and the duties that they have. I first detail the roles of central, state, district and block level governments before describing the decentralised and centralised delivery models.

4.5.2 The National Government

The MDMS is the responsibility of the Secretary of SE&L within the MHRD. The duty-bearers within the MHRD are shown in Figure 4.2.

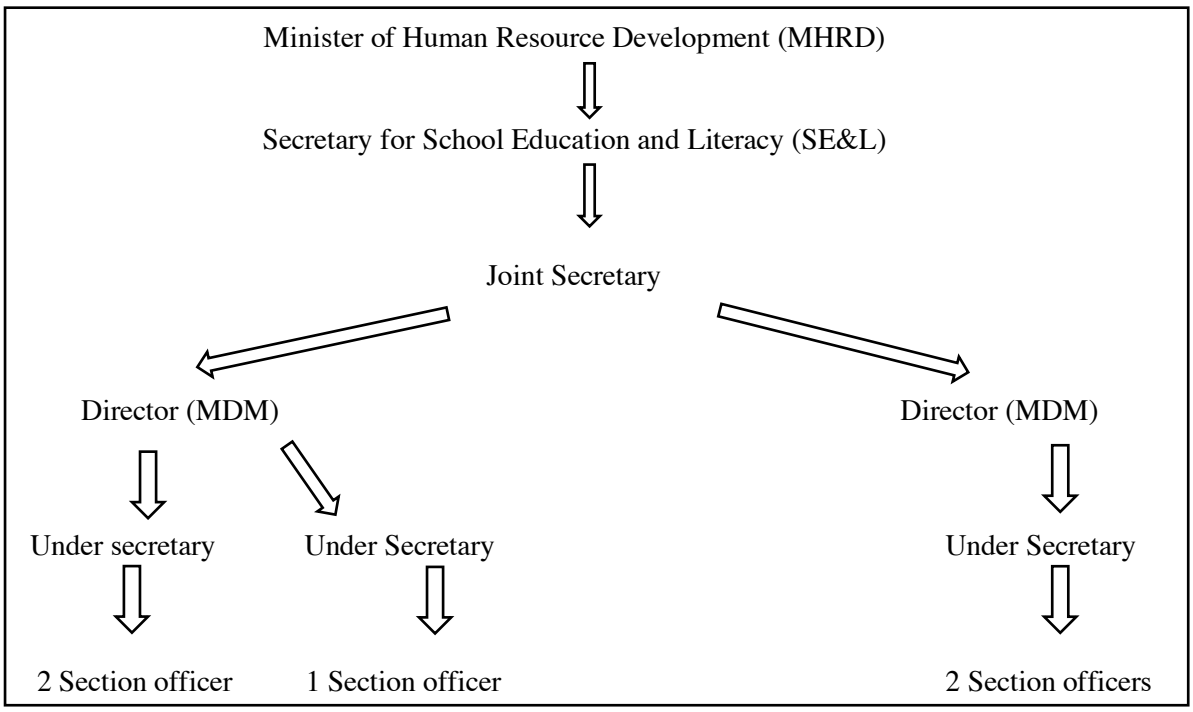


Figure 4.2: Responsibility for the MDMS in the central government (MHRD, 2016)

The MHRD is responsible for setting national norms and nutritional standards, providing funding and reporting and monitoring impact (MHRD, 2006: 20). A National Steering-cum-Monitoring Committee was established in 2005 and is chaired by the Secretary for SE&L. Members of this committee include representatives from the MHRD and other relevant departments and representatives from external institutions such as the Food Corporation of India (FCI). The committee is expected to meet every six months to: guide and monitor implementation; co-ordinate concerned departments and schemes; mobilise community support and public-private partnerships; provide policy advice to Central and state governments and to identify institutions to undertake training, capacity building, monitoring and evaluation and research (MHRD, 2006: 12).

In 2013, the MHRD established an 'empowered committee' to oversee implementation. The committee is chaired by the Minister of Human Resource Development. The committee's 33 members include the Member of State for Elementary Education, the Education Ministers from certain states and representatives from NGOs running centralised kitchens. The committee is expected to meet every three months to: assess safety and hygiene, converge with other relevant departments such as the Ministry of Health and Family Welfare; and to review governance, implementation and community participation (MHRD, 2013m: 2). At the national level, there is also the Planning and Approval Board (PAB) which considers and approves the AWPBs submitted by each state/UT at the beginning of each year (MHRD, 2006).

4.5.3 The State, District and Block Governments

In each state, a nodal department is appointed to manage and implement the MDMS. This is often the Department of Education, but in Rajasthan the Department of Rural Development and Panchayati Raj is responsible for the MDMS in both rural and urban areas. Responsibilities in Rajasthan are divided as shown in Figure 4.3. State Governments establish norms of expenditure and hygiene regulations, and submit the AWPB and release funds. In addition, states must report on the scheme, assess its impact and oversee studies.

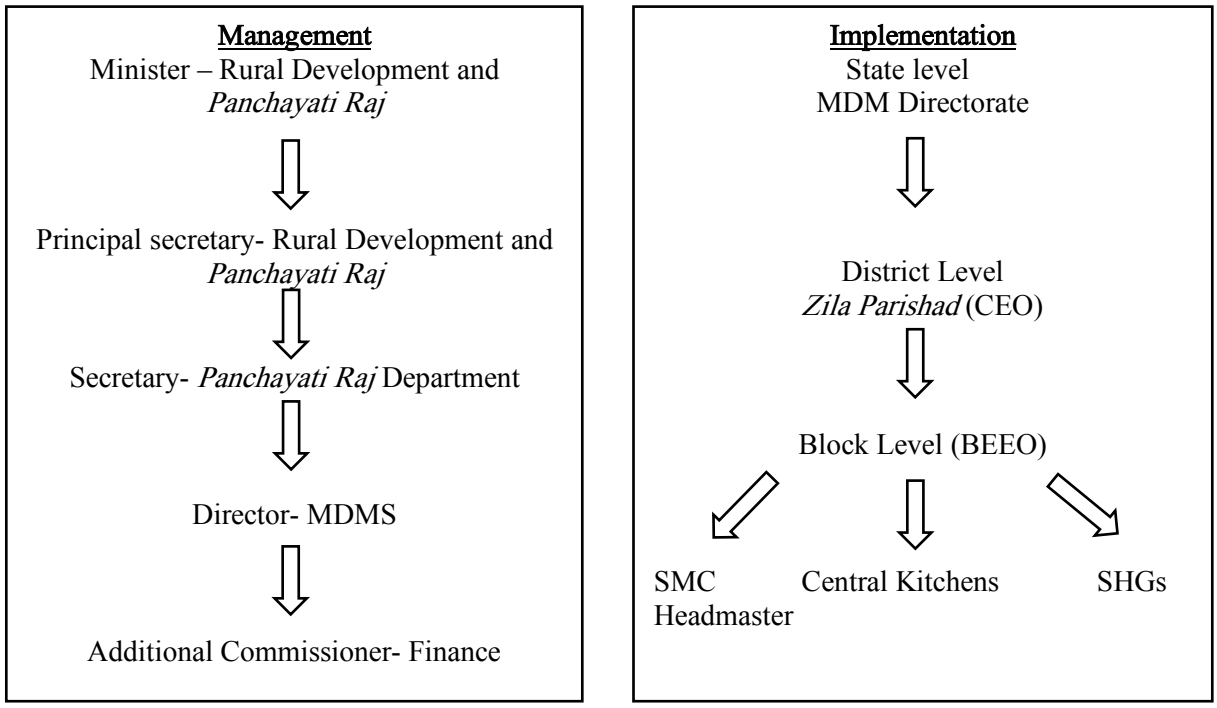


Figure 4.3: The management and implementation structure for the MDMS in Rajasthan (GOR, 2016a: 6)

The MDMS at the state-level is overseen by a state level steering-cum-monitoring committee. The committee is expected to meet every six months to ensure the 'implementation of the [National Food Security] Act including establishment of a mechanism for maintenance of nutritional standards and quality' (GOI, 2015a: paragraph 6).

In each district, a nodal department is assigned responsibility for the MDMS. In Rajasthan, this is the *Zila Parishad* (district council). The Chief Executive Officer (CEO) of the *Zila Parishad* has primary responsibility for the MDMS. A district steering-cum-monitoring committee is responsible for determining the eligibility of voluntary agencies, lifting and transporting food grain, completing information activities to increase awareness, reporting and assessing impact and overseeing studies. The committee should meet monthly. At the Block level, the Block Elementary Education Office (BEEO) is responsible for the MDMS.

4.5.4 The Budget

The GOI bears the full cost of food grain, transportation, utensils and management, monitoring and evaluation (MME). The costs of cooking, kitchen construction and the wages of CCHs are shared

between the Centre and the State. Costs were previously shared at a ratio of 75:25, except for the North-Eastern Region (NER) where the ratio was 90:10. In January 2016, the ratio changed to 60:40, except for the NER and Himachal Pradesh, Jammu and Kashmir and Uttarakhand, where costs are shared at 90:10 (MHRD, 2016c). The GOI provides 100% of funds to UTs. The money for the recurring costs of cooking and wages are released annually as 'recurring grants'. Funds for the construction of kitchens and kitchen devices are released once as 'non-recurring grants' (Accountability Initiative, 2013). The GOI is responsible for setting the minimum cooking costs in the MDMS, i.e. the amount to be spent per child per day. The cooking costs for the past three years and associated sources of funding are presented in Table 4.8. At the time of fieldwork (2014-2015), the cooking cost was INR 3.59 for primary students and INR 5.58 for upper primary students. Cooking costs should increase by 7.5% annually (MHRD, 2009a). This increase occurred for all years from 2014-2017, except for the upper primary level in 2015-2016, which was just 3.5% higher.

Table 4.8: Cooking cost in the MDMS in INR (MHRD, 2016a)

Year	Primary level	Cooking cost	Non-NER states		NER*		UTs
			GOI	State	GOI	State	
2014-2015	Lower	3.59	2.69	0.90	3.23	0.36	NA
	Upper	5.58	4.04	1.34	4.48	0.54	NA
2015-2016	Lower	3.86	2.32	1.54	3.47	0.39	3.86
	Upper	5.78	3.47	2.31	5.20	0.58	5.78
2016-2017	Lower	4.13	2.48	1.65	3.72	0.41	4.13
	Upper	6.18	3.71	2.47	5.56	0.62	6.18

*NER and, since 2015, Himachal Pradesh, Jammu and Kashmir and Uttarakhand.

The budget for the MDMS is determined in the annual Union Budget. Between 2014-2015 and 2015-2016 the budget declined (Table 4.9), a trend also observed in the budget for the ICDS. The Bharatiya Janata Party (BJP) government, which came to power in 2014 was for this reason criticised in the media (e.g. *The Economic Times*, 2015; *The Hindu*, 2015). The government replied that the funding had not been cut as increased money was devolved to the states (DNA India, 2015). The implications for funding, however, vary at the state level depending on each state's contribution (IO2[5]). The Centre for Budget and Governance Accountability found that the funding for all nutrition schemes in Odisha, Madhya Pradesh and Andhra Pradesh decreased between 2014-2015 and 2015-2016. The report noted that the increase in the financial autonomy of states had adversely affected nutrition schemes in some states, leaving funding dependent on state-level budgetary priorities (Shrivastava, 2016: 71).

[5] All expert interviews have been assigned codes, outlined in Appendix D.3.

Table 4.9: Union Budget allocation for the MDMS in INR Billions (MHRD, 2017d)

Year	Budget Estimate	Revised Estimate	Released
2007-2008	73.24	66.78	58.35
2008-2009	80.00	80.00	65.39
2009-2010	80.00	73.59	69.37
2010-2011	94.4	94.40	91.28
2011-2012	103.8	102.39	99.01
2012-2013	119.37	115.00	108.67
2013-2014	13.215	121.89	109.27
2014-2015	13.215	110.50	105.26
2015-2016	92.36	92.36	91.51
2016-2017	97.00	97.00	94.83
2017-2018	100.00	-	-

The budget for the MDMS in Rajasthan has declined since 2014 (Table 4.10). In Rajasthan, the total budget for child development and nutrition, which includes the MDMS, has declined from a budget estimate of INR 19.58 billion in 2014-2015 to 16.95 billion in 2015-2016.

Table 4.10: Rajasthan MDM budget in INR millions (Budget Analysis Rajasthan Centre, 2017)

Year	Budget Estimate	Revised Estimate	Actual Expenditure
2010-2011	-	-	7,130.0
2011-2012		6,580.8	6,208.1
2012-2013	7,490.6	7,799.5	6,854.7
2013-2014	7,487.5	7,478.5	5,580.0
2014-2015	7,611.0	6,000	5,668.9
2015-2016	6,594.5	6,834.6	-
2016-2017	7,092.7	7,072.4	-

4.5.5 Flows of Funds and Grains

The quantity of ingredients and levels of funding are based on a specified amount per child. Each school calculates the number of children they anticipate will consume the MDM. This information is then passed to the block, district and state level governments (Accountability Initiative, 2013). Based on these figures, each state then creates an AWPB detailing the grain and funding requirements. As the GOR (2016a: 10-13) outline, in Rajasthan, the specified quantity of grain for each district is taken

from the FCI and transported by the state nodal transport agency (the Department of Food, Civil Supplies and Consumer Affairs). The Department lifts food grains quarterly. The transport agency takes the grain from the FCI depot to the school, according to the amount specified by the BEEO. The GOI transfers funds to the State Nodal Department in three or four instalments per year. Central and state funds are then released to districts in proportion to enrolment and attendance. Funds are then transferred from the District treasury office to the *Zila Parishad,* then to the BEEO and finally to schools (GOR, 2015a).

4.5.6 Infrastructure

The RTE Act, the NFSA and their respective rules detail the infrastructure required for the MDMS in each school. Schools should have toilets for boys and girls, safe and adequate drinking water and a kitchen. Kitchens should be sufficient in size; $20m^2$ for up to 100 students, and $4m^2$ for every additional hundred students (MHRD, 2009a). Kitchens should also have chimneys, sufficient ventilation and sunlight and smokeless *chulhas* are encouraged (MHRD, 2006; 2015c). Central and state governments fund the construction of kitchen-cum-stores at a cost of INR 90,000. State governments must detail the funding required to construct kitchens in the AWPB. *Gram Panchayats* are then responsible for the construction. Central and state governments are also responsible for providing water and sanitation facilities. The building of infrastructure falls under the remit of SSA through direct and convergent funding with other schemes, such as *Swach Bharat: Swach Vidyalaya* (GOI, 2011b; 2014c).

4.5.7 Management, Monitoring and Evaluation

The central government provides the equivalent of 1.8% of the total cost of grain, transport and cooking costs for MME (MHRD, 2006). In April 2015 to April 2016 in Rajasthan, INR 105.1 million were allocated for MME. At the end of 2015, INR 36.27 million had been released.

Management, i.e. the management of data, requires schools to maintain expenditure and grain consumption records and submit a monthly progress report to a nodal school. The nodal school submits reports to the block-level officers who enter the data into the Management Information System (MDMS-MIS) web portal. District level officers also input data into the portal. The data is then reviewed at the state level. The 2006 guidelines stress the need to process data digitally as manual data collection and entry is time-consuming and error-prone.

A range of actors have a duty to monitor the MDMS. At the national level, JRMs evaluate sampled schools. JRMs should now visit 12 states annually (MHRD, 2015b) to assess the implementation of the scheme and the nutritional status of children. The state MDM office must monitor the MDMS regularly, including the quality and regularity of meals and must evaluate the impact of the scheme on attendance, retention and nutrition (MHRD, 2006). One quarter of schools should be visited each quarter, such that all schools are visited annually (*ibid*). The state management committee is also expected to monitor the scheme.

Fifteen officials at the district and block levels must monitor a specified number of schools (Table 4.11). Each school should be visited at least twice per year.

Table 4.11: Targets for monthly monitoring in Rajasthan (GOR, 2016a).

Administrative level	**Official**	**Schools per month**
District	District Collector	5
	Additional District collector	5
	Sub-divisional officer	10
	Tehsildar	10
	Other District Level Officers (DLOs)	5
	Chief executive officer (CEO), *Zila parishad*	5
	Additional Chief executive officer (CEO), *Zila parishad*	5
	Other officers, *Zila Parishad*	5
	District Education Officer	20
Block	Block Education Officer	20
	Sub-divisional Education Officer	20
	Block Development Officer	10
	Other officers of *panchayat samiti*	5
	Other block level officers	5
	Executive Officer, Local Bodies	10
	Total	**140**

In each state, independent institutions monitor the MDMS. In Rajasthan, the scheme is monitored by The Institute of Development Studies, The Centre for Development Communication and Studies and the Shiv Charan Mathur Social Policy Research Institute, which are all in Jaipur. These institutions submit reports to the GOR bi-annually. Between April and December 2015, these institutions carried out 280 inspections at a cost of INR 3.9 million (GOR, 2016a).

4.6 The Delivery Models

4.6.1 Introduction

In the decentralised model, the MDM is cooked and served on school premises and may be managed by SMCs, *Panchayati Raj* Institutions (PRIs), *Gram Panchayats* or urban local bodies. There are two other main delivery models in the MDMS; SHGs and NGOs. SHGs are groups, typically of women, who provide the MDM to a small number of schools. NGOs typically run far larger and mechanised kitchens, from which they supply the MDM to hundreds of schools. The decentralised model is the most common delivery model (Table 4.12). The figures for each state are provided in Appendix D.2. The MDMS is overseen by SMCs in 77.1% of MDM- eligible schools in Rajsamand district and 99.7% in Udaipur district.

Table 4.12: Percentage of schools in India and Rajasthan managed by each management type

Management	**Percentage of schools covered by each management type**	
	India	**Rajasthan**
SMCs	44.4	92.2
PRI/local bodies	17.2	0
SHGs	27.2	2.6
NGOs	3.2	5.2
Trusts	0.2	0
Other	7.9	0

4.6.2 The Decentralised Model

SMCs are similar to parent-teacher associations and are mandatory under Section 21 of the 2009 RTE Act. In Rajasthan, SMCs should have 13 members, of which at least three quarters are parents of students (GOR, 2016a). Proportionate representation should be given to 'weaker' sections of society and at least half of the members should be women. Other members should include officials from the local authority, teachers and local 'educationists' or children at the school (GOI, 2010). SMCs are expected to meet monthly. As per the RTE Act (2009), SMCs should monitor the working of the school, prepare the school development plan and monitor the utilisation of grants. The 2010 Rules on the RTE Act state that SMCs should communicate children's rights; ensure the punctual attendance of teachers; ensure that teachers are not burdened with non-academic activities except for the census, disaster relief and elections; ensure student enrolment and attendance; maintain norms and standards;

bring the deviations from the rights of children to the attention of authorities; monitor the implementation of the MDMS and prepare an annual account of receipts and expenditure (GOI, 2010). The 2015 guidelines on safety stipulate that SMC members should taste the food before it is served (MHRD, 2015b). The 2015 MDMs Rules state that SMCs should monitor implementation and oversee quality, cleanliness and hygiene (GOI, 2015a). The GOR considers SMCs to be ultimately 'responsible for effective implementation of the [MDM] Programme at school level' (2016a: 14).

Within each school, the head-teacher and a teacher designated the 'Midday-Meal-in-charge' are responsible for the MDMS. These teachers must 'a) ensure good quality, wholesome food is served to children and b) [that] the actual serving and eating is undertaken in a spirit of togetherness, under hygienic conditions and in an orderly manner' (MHRD, 2006: 23). Teachers must also taste the food before it is served, maintain a tasting record and keep records of the cash spent and the food grain consumed (MHRD, 2015c). There are two contexts in which the duties of teachers are unspecified and therefore unclear: when the MDM is provided by an NGO and when the MDMS is provided during the summer vacation in drought-affected areas.

CCHs are 'expected to perform all activities relating to cooking, serving and washing the utensils' (MHRD, 2010a). In return, they are paid an honorarium (not wage) of at least INR 1,000 per month. The honorarium is paid for 10 months per year as CCHs are not employed during the summer vacation. In 2015-2016, 13 states paid cooks more than the minimum, from INR 1,200 per month in Chhattisgarh to INR 250 per day or INR 6,000 per month in Lakshadweep. In Rajasthan, CCHs receive the minimum INR 1,000 per month. If NGOs organise the serving of the MDM, then they receive the honorarium (MHRD, 2010a). If the centralised kitchen is not serving the meal then the honorarium is divided between the kitchen and the person or agency serving the meal, although the MHRD offer no guidelines on how the honorarium is divided. As per the 2004 Supreme Court order, 'in [the] appointment of cooks and helpers, preference shall be given to Dalits, Scheduled Castes and Scheduled Tribes'.

4.6.3 NGOs

In 2015-2016, there were 361 NGOs running 475 kitchens and supplying the MDM in 35,441 institutions across India (Table 4.13). NGOs provided food to 5.1% of students in schools receiving the MDM. The extent of coverage and number of NGOs varies by state (Table 4.13). In Rajasthan, there are presently four NGOs running six kitchens across four districts (see Section 7.6).

Table 4.13: NGOs in the MDMS 2015-2016 (calculated from the AWPBs, 2015-2016)

State/UT	Kitchens	NGOs	Institutions		Enrolled Students	
			Freq.	%	Freq.	%
Andhra Pradesh	8	2	1,018	2.2	123,552	3.8
Assam	1	1	591	1.0	47,559	1.0
Bihar	6	29	2,751	3.9	821,717	4.0
Chhattisgarh	5	4	671	1.5	114,326	3.4
Gujarat	8	3	3,264	9.0	492,762	8.0
Haryana	4	1	4	0.0	277,932	15.5
Jharkhand	2	1	388	0.9	55,816	1.1
Karnataka	62	80	5,840	10.5	877,518	17.3
Madhya Pradesh	15	11	2,171	2.5	324,711	3.9
Maharashtra	9	2	1,441	1.7	278,832	2.4
Orissa	1	1	297	0.5	30,112	0.6
Rajasthan	6	4	3,728	5.2	252,519	4.0
Sikkim*	-	-	65	8.8	-	-
Telangana	1	1	961	3.3	46,795	2.2
Uttar Pradesh	154	112	8,356	5.0	1,086,423	5.8
West Bengal	146	61	892	1.1	158,366	1.3
Chandigarh	3	3	0	0.0	47,000	46.5
Delhi	44	45	3,003	100.0	1,716,142	98.1
Total	475	361	35441	157.1	6,752,082	5.1

*NGOs provide the meal in Sikkim, but there are no centralised kitchens

NGOs typically use their own funds or funds from the private sector to cover the costs of establishing a kitchen. The GOI supplies NGOs with grain and the funds to cover cooking costs. Therefore, the involvement of NGOs in the MDMS changes the organisation of the service delivery, but does not alter the cost for the public sector. NGOs must purchase non-grain ingredients and prepare and distribute the food (MHRD, 2006). NGOs should only provide the MDM in large urban locations where space is constrained and centralised distribution is feasible (*ibid*; *NFSA,* 2013).

In the 2006 guidelines, the MHRD stated that several points needed to be 'kept in mind' to determine the suitability of voluntary organisations (17-18), including:

(i) The voluntary agencies should not discriminate in any manner on the basis of religion, caste and creed, and should not use the programme for propagation of any religious practice.

(ii) The voluntary agency should be…registered under the Societies Registration Act or the Public Trust Act, and should have been in existence for a minimum period of two years.

(iii) …undertake supply responsibility on a no-profit basis.

(iv) Financial and logistic capacity to supply the mid day meal on the requisite scale.

(v) Commitment to abide by the parameters of NP-NSPE, 2006 particularly…the prescription of eligible children, nutrition content etc…

(vi) It will furnish to the body assigning the work to it an Annual Report along with audited statement of accounts...

(vii) The voluntary organisation shall not entrust/ sub-contract the programme or divert any part of the assistance (food grains/money).

The MHRD (2010b) has since added that:

> Operation of these Centralized kitchens may be entrusted to reputed NGOs under the PPP model. It would be advisable to select NGOs with a local presence and familiarity with the needs and culture of the State. As the quality and quantity of meals supplied to a large number of children...depends upon the commitment and ability of the NGOs, it is important that such NGOs are selected carefully and their performance is evaluated regularly.

To ensure accountability, the MHRD (2010b) added that: NGOs should have a managing body with clearly defined duties; the names of all officers and their duties should be disclosed; a contract/Memorandum of Understanding (MOU) between the NGO and the local authority should be signed; a mechanism to check food quality and quantity should exist; performance should be assessed annually and renewal of the MOU should depend on satisfactory performance. The NFSA and 2015 MDMS Rules state that these guidelines should be followed and reiterate that centralised kitchens should only operate in urban areas. When viewed in reference to the literature on NGO accountability (Section 2.6.3), it is clear that these specifications ensure some accountability within the NGO and to patrons (the state government). The third form of accountability to 'clients' is not discussed by the NGOs. The specified arrangements are for internal performance assessment. Although external accountability is indicated by the stipulation that governments should only continue the MOU if there is satisfactory performance, what this means and where this will draw on internal assessments of food quality and quantity are unclear.

4.6.4 Self-help Groups

When the MDM is supplied by SHGs, these groups are responsible for the preparation, cooking and distribution of the MDM. SHGs may sometimes operate under the guidance of NGOs. In Rajasthan, SHGs may take the form of *Annapurna Mahila Sahkari Samities* (AMSS), women's cooperative committees. Presently in Rajasthan, there are 249 SHGs providing the MDM to 169,817 students in 1,847 schools (GOR, 2016a). There are no SHGs in Rajsamand district and only two in Udaipur district covering 12 schools. As the MDMS was not supplied by SHGs in any of the sampled schools, this study cannot provide insight into SHGs in the MDMS. The SHG model is a topic worthy of further investigation.

4.6.5 The Community

The Secretary of SE&L issued a letter to the secretary of education in every state/UT, stating that 'community participation is key to the successful implementation of the MDMS as it ensures effective monitoring at the local level and generates a sense of ownership of the programme' (MHRD, 2014a: 1). The 2015 guidelines on safety state that schools should draw on the support of the community to ensure quality, cleanliness and handwashing (MHRD, 2015c: 9). There is a distinct gendered dimension to the expected involvement of the 'community', as the GOI particularly advocate the involvement of mothers. In a letter to Chief Ministers included in the 2006 Guidelines (GOI, 2006: 59), the Minister of HRD wrote:

> Mothers could be encouraged to take turns to come to the school at the time of the preparation or serving of the meal. By this simple intervention, we could empower crores of mothers to exercise effective vigil reducing dependence on inspectors.

The MHRD (2016b) stated that: 'The intention is to empower mothers of the children covered under the programme to supervise the preparation and serving of the meal and to exercise an effective vigil'. Mothers are involved in the implementation of the MDMS in some states. For example, in Uttarakhand in each school all CCHs are mothers of children at that school and are referred to as *Bhojan matas* (food/meal mothers). However, generally the involvement of mothers is perceived as in addition to the role of CCHs and is voluntary.

Another initiative to encourage community participation is *Tithi Bhojan* ('date meal'), in which the community donates food or equipment to the MDMS on special occasions. Based on the perceived

success of the initiative in Gujarat, in 2014 the GOI decided to introduce the practice nationally. The scheme was introduced in Rajasthan in 2015 as '*Utsav Bhoj Yojana'* (Festival Feast Scheme) (GOR, 2016a). The GOR reports that between June and December 2015, 1.53 million meals were served under this initiative, although they do not provide any details as to when and where these meals were served. It is unclear how the community might be involved in the implementation of the MDMS in the centralised delivery model.

The involvement of the community in the MDMS therefore extends beyond the recognition that the community has an imperfect obligation to realise a right to food. Nevertheless, for perfect obligations to arise requires additional organisation and institutionalisation; rotas would need to be established to organise volunteering and some organisation would need to take place to guide the donation of food by the community. The expected involvement of the community also raises the issues of accountability; if something were to go wrong, would the volunteering mothers or those that had donated the food be held responsible? This is an important issue; however, due to the lack of involvement of the community found in the study area, it is not empirically examined in this thesis.

4.6.6 Claims and Duties

Drawing on Jonsson (2005), from the information provided in Sections 4.6.1-4.6.5, I have conducted a pattern analysis of claims and duties (Table 4.14). The realisation of the right to food requires that the duty-bearers outlined in Table 4.13 perform the duties. The concept of 'duty-bearers' therefore allows for a detailed assessment of obligations, which goes beyond the duties of 'the state'. Once these relationships have been established, whether obligations are fulfilled and the determining factors must be explored.

Table 4.14: Claims and Duties

			Claim-holders							
			Children/Parents	Teachers	CCHs	NGOs/SHGS	Government			
							Block	District	State	National
Duty-bearers	Teachers		Ensure the MDM is provided. Establish SMC	X	Employ CCHs	Provide cooks if NGO is not	Maintain records. Provide data. Ensure MDM is provided			
	SMCs		Communicate rights, ensure implementation, encourage enrolment/attendance.	Make sure they are not overburdened.	Employ CCHs.		Fulfil roles as per Right to Education Act including bringing to attention deviation from rights.			
	CCHs		Prepare, cook and distribute MDM	Prepare, cook and distribute the MDM	X	Distribute food	Prepare, cook and distribute MDM			
	NGOs/ SHGs		Provide meal as per guidelines	Deliver	Payment, training	X	Provide food. Operate as per guidelines, including provision of reports.			
	Community		Ensure hygiene/ cleanliness, provide food.	Monitor	-	-	-	-	-	-
	Government	Block	Ensure a quality meal is provided.	Provide grain, Monitor	Release funds.	Release funds	X	Provide information on grains and funds needed.		
		District	Ensure a quality meal is provided.	Monitor, oversee infrastructure construction.	Payment	Release funds and grain	Provide grain, release funds.	X	Information on grains and funds needed	
		State	Decide on a menu that is appropriate and meets needs	Monitor	Supply funds	Supply funds and grain	Release funds, co-ordinate grain	Release funds.	X	Provide funds. Prepare PAB
		National	Legislation on MDM, that meets the needs of children.	Infrastructure (sanitation), monitor	Supply funds	Supply funds and grains	Release funds			X

4.7 Accountability Mechanisms

In the previous discussion, I have outlined the provisions in place for external accountability in the MDMS from various committees and for NGO accountability. Here, I consider the provision for external accountability 'from below', from rights-holders and their parents.

In the 2006 guidelines, the MHRD stated that all states/UTs must create 'widely publicised' and 'easily accessible' mechanisms for public grievance redressal, such as a toll-free call line (2006: 33). The decisions as to the forms these mechanisms might take are left to the state governments. The GOR (2016a) outlines the following potential 'grievance redressal mechanisms'. Any complaint made in the media is sent to the CEO of the *Zila Parishad*. A reply from the district officer and action is sought immediately. If a serious issue is raised through the Chief Minister's office, a response is sought from the district or block officer. The secretary of the government should review and address the grievance. Complaints made in person or by post are dealt with immediately and a report is sent to the issuer of the complaint once the issue has been resolved. The GOR does not specify where the complaint should be made. If shortcomings in the implementation of the MDMS are highlighted in monitoring reports, the concerned authority is expected to respond accordingly. The state, district and block officers are responsible for issues regarding the right to information, and the head teacher is responsible for providing information. A toll-free line that allows the public to complain about the MDMS does not exist in Rajasthan (GOR, 2015a).

The 2015 MDMS Rules included the provision of a food security allowance; a legal accountability mechanism for rights-holders. The allowance entitles children to the quantity of grain and cooking cost if the MDMS is not provided for three consecutive days or three days a month. To my knowledge, currently there are no details available on how this allowance system will be implemented.

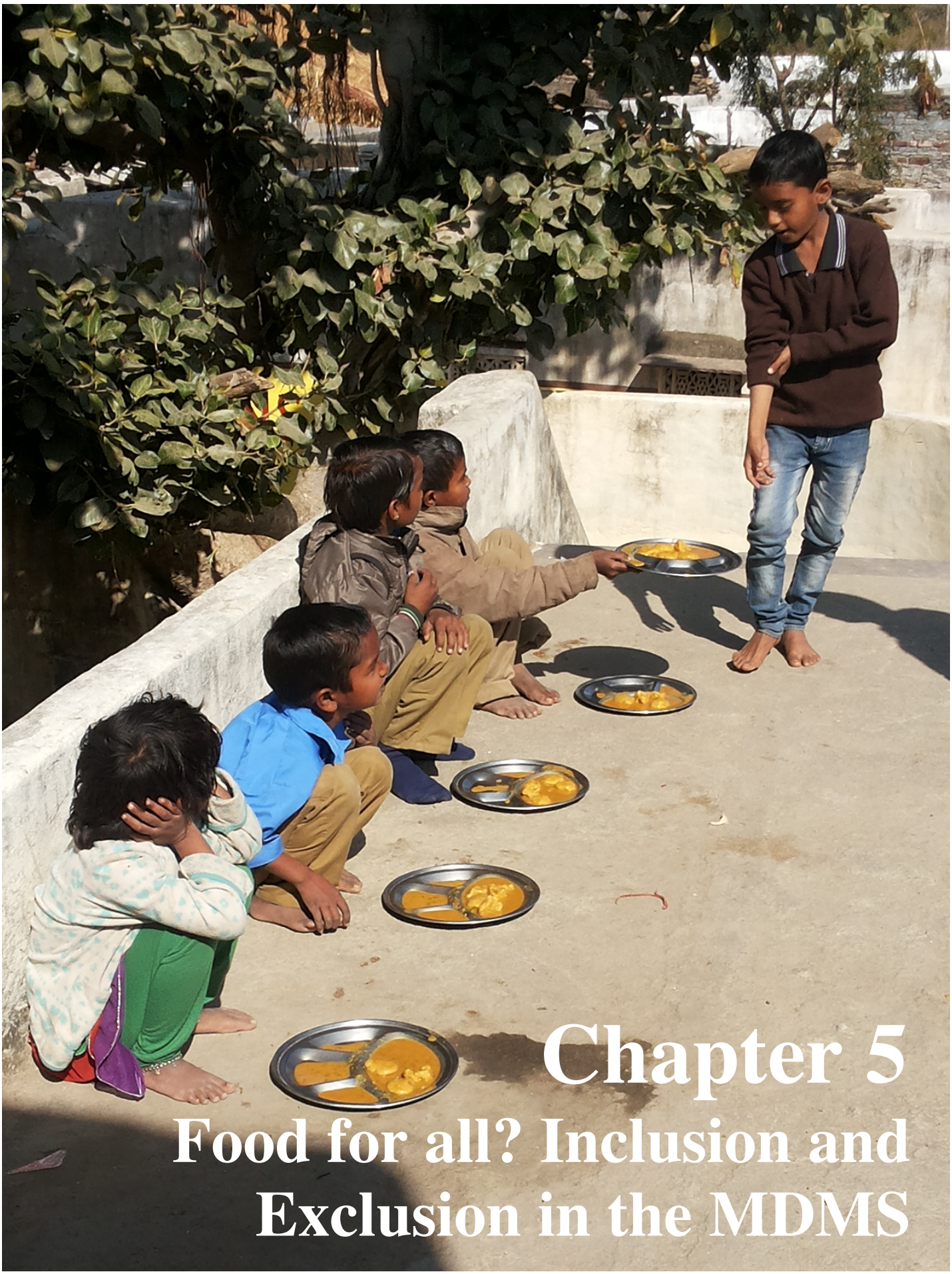
These details are the extent of the information that the GOR provides on the accountability mechanisms in the MDMS. From this information, it is not sufficiently clear who a rights-holders' representative should complain to and how. In Chapter 8, I examine the existence and use of these mechanisms in practice.

4.8 Conclusion

In this chapter, I have shown that the MDMS has three primary objectives; to encourage attendance, to improve nutrition and to protect consumption during droughts. I have also shown the limitations in the conceptualisation of these objectives and the inconsistent recognition of them among duty-bearers at

the national and state level. I then detailed the three components of a rights system rights-holders and their rights, duty-bearers and their duties and accountability mechanisms. These components, particularly the first two, are clearly defined in national and state government guidelines. In the empirical chapters that follow, I examine these components in practice.

In this chapter, I have shown that the design of the MDMS reflects rights-based principles. The GOI encourages community participation, the MDMS is designed with consideration for accountability and transparency and the principle of non-discrimination is adhered to in the employment of CCHs and the involvement of NGOs. The rule of law is also used, particularly to ensure food safety. The following four chapters examine the extent to which the norms and guidelines outlined in this chapter are adhered to and reflected in practice, and overall whether the implementation of the scheme reflects a RBA.



Chapter 5

Food for all? Inclusion and Exclusion in the MDMS

Chapter 5

Food for all? Inclusion and Exclusion in the MDMS

5.1 Introduction

In contrast to many other SFPs, in the MDMS students are targeted by age and school type (Section 4.3). In consequence, of the approximately 233 million children aged 6-14 years in India (GOI, 2011a), 133.7 million are eligible to receive the MDM (NUEPA, 2016).[1] Of these, 100.3 million actually consume the MDM (MHRD, 2016g). Of the 100 million children that are ineligible to receive the MDM, 62.8 million attend ineligible schools (NUPEA, 2016) and the remaining do not attend school (GOI, 2011a).[2] Thus, almost 100 million children have no right to consume the MDM and a further 30 million do not realise their right.

In this chapter, I explore these patterns of inclusion and exclusion in the MDMS. To assess whether targeting has led to the inclusion of the needy, I first consider who the rights-holders in the MDMS are. To do this, I use secondary data to examine trends in enrolment (Section 5.2.1). I then use primary data from the household surveys to examine the socio-economic background of the students enrolled at the sampled schools and their food consumption (Sections 5.2.1 and 5.2.2). I then explore the impact of the scheme as it is perceived by the rights-holders and their representatives (their parents) to provide further insight into need and inclusion (Section 5.2.3). In Section 5.4, I focus on the 'gap' between eligibility and consumption; the difference between having a right and realising it. I examine the extent of this trend and explore the potential determinants. I then turn to those excluded from the

[1] These calculations are limited by comparing 2011 Census data (GOI, 2011a) with data from the NUEPA (2016) for 2015-2016. Therefore the figures should be considered approximations.
[2] The Census data for 6-14 year olds likely includes children aged six not starting school or those aged 14 having left school. Yet, even when 6 and 14 year olds are removed, 25.5 million children are out-of-school.

scheme. First, I examine exclusion *within* the scheme due to discrimination (Section 5.5) and the temporal variation in MDM provision (Section 5.6). Then, I consider exclusion *from* the MDMS. I focus on three groups of excluded children: those in private schools, those above grade VIII and those out-of-school (Section 5.7). Finally, I consider the unintended inclusion of two groups: rights-holders' siblings and adults (Section 5.8).

5.2 The Rights Holders

5.2.1 Who are they?

To understand who the rights-holders in the MDMS are, it is first necessary to consider who is enrolled in eligible schools. Table 5.1 presents the 2015-2016 enrolment data for all school types. In total, 68% of children in India and 52.1% of children in Rajasthan were enrolled in eligible schools. In Rajsamand and Udaipur, this figure was higher at 71.6% and 69.1% respectively. The MDMS is therefore, in principle, available to a large proportion of students in the study area.

Table 5.1: Enrolment in all schools in India, Rajasthan and the study districts 2015-2016 (NUEPA, 2016).

Type of School	India		Rajasthan		Rajsamand		Udaipur	
	Students	**%**	**Students**	**%**	**Students**	**%**	**Students**	**%**
Central Government*	1,392,567	0.7	50,554	0.4	193	0.1	1943	0.4
Department of Education*	91,090,203	46.3	4,948,805	40.0	118,918	56.0	197,307	42.7
Local Body*	20,776,367	10.6	1,225,004	9.9	32,568	15.3	110,801	24.0
Madarsa Recognised*	1,859,512	0.9	179,277	1.4	345	0.2	1376	0.3
Madarsa Unrecognised	352,166	0.2	2,503	0.0	0	0.0	0	0.0
Others	333,660	0.2	0	0.0	0	0.0	0	0.0
Private-aided*	15,307,371	7.8	0	0.0	0	0.0	0	0.0
Private un-aided	59,341,733	30.2	5,891,623	47.6	60,408	28.4	142,896	30.9
Tribal/social welfare*	3,327,855	1.7	41,712	0.3	0	0.0	7,910	1.7
Unrecognised	2,934,652	1.5	36,702	0.3	0	0.0	0	0.0
Total	196,716,086	100.0	12,376,180	100.0	212,432	100.0	**462,233**	100.0

*MDM-eligible schools

As discussed in Section 4.3, the MHRD assumes that of the 'children attending Government schools, a large number belong to the disadvantaged social and economic groups of the society' (in PAC, 2010 8). Of girls, children from 'lower' castes and Muslims, a higher proportion of each group is typically enrolled in government schools than private schools and therefore are more likely to be rights-holders in the MDMS.

In Table 5.2, I present the gender and caste composition of the students enrolled in eligible and ineligible schools nationally, in Rajasthan and in the study districts. In India, although males account for approximately 52.2% of 6-14 year olds, they account for 49.1% of students enrolled in MDM-eligible schools and 56.2% of all students in ineligible schools. These trends are more pronounced in Rajasthan and also exist in Rajsamand. In Udaipur, the percentage of males enrolled in eligible schools reflects their proportion in the population. The number and genders of out-of-school children are discussed in Section 5.6.4. The majority of SCs, STs and OBCs attend government schools at all levels, with the exception of OBCs in Rajasthan. Notably, the majority of students attending eligible schools in Udaipur are from STs, whereas OBCs comprise the majority at all other levels. Both across India and within Rajasthan, more than half of Muslim children are enrolled at MDM-eligible schools; however, this is not the case in the study districts.

Overall, girls and lower castes are more likely to be enrolled in MDM-eligible schools than non-eligible schools. In the study districts, approximately 51% of rights-holders are male, between 86-90% belong to a SC, ST or OBC and just over 1% are Muslim.

Table 5.2: School enrolment by gender, caste and school type* 2015-2016 (NUEPA, 2016)[3]

		India		Rajasthan		Rajsamand		Udaipur	
		Eligible	**Ineligible**	**Eligible**	**Ineligible**	**Eligible**	**Ineligible**	**Eligible**	**Ineligible**
Percentage of all enrolled students		68.6	31.4	52.3	47.7	71.1	28.9	71.8	28.2
Gender[4] (%)	Male	49.1	56.2	48.7	59.7	50.7	60.2	50.8	58.8
Caste (% at each school type)	General	52.6	47.4	30.0	70.0	48.8	51.2	36.0	64.0
	SC	76.4	23.6	63.4	36.6	73.4	26.6	58.4	41.6
	ST	85.2	14.8	75.9	24.1	93.7	6.3	91.0	9.0
	OBC	68.7	31.3	47.5	52.5	72.1	27.9	57.3	42.7
	Muslim	73.8	26.2	53.7	46.3	46.1	53.9	31.3	68.7
Caste (% of all students)	General	16.7	32.9	8.5	21.8	11.8	30.5	8.2	37.3
	SC	19.4	12.9	22.5	14.3	14.0	12.4	4.9	8.8
	ST	11.3	4.3	20.5	7.2	20.6	3.4	69.9	17.7
	OBC	39.6	39.7	40.7	49.5	52.2	49.7	15.9	30.3
	Muslim	13.0	10.2	7.7	7.3	1.4	4.0	1.1	6.0

* Eligible schools are those classified by the NUEPA as Central, Department of Education, Local body, recognised *Madarsa*, private-aided and tribal/social welfare. Ineligible schools are unrecognised *Madarsas*, private-unaided schools, unrecognised schools and 'others'.

[3] Absolute figures are provided in Appendix D.1.
[4] Males comprise 52.2% of 6-14 year olds in India, 52.8% of this group in Rajasthan, 52.1% in Rajsamand and 50.8% in Udaipur.

SCs comprise a greater percentage of those enrolled in government schools than their proportion in India and Rajasthan (Table 5.3). STs account for a greater proportion of enrolled students than their proportion in the population across all locations (Table 5.3). Notably, STs account for more than two-thirds of the rights-holders in Udaipur; far higher than their proportion in the population.

Table 5.3: Proportions of SCs and STs in the population (GOI, 2011a) and in MDM-eligible schools (NUEPA, 2016)

	SC		**ST**	
	Population 6-14 year olds (%)	**MDM-eligible schools (%)**	**Population 6-14 year olds (%)**	**MDM-eligible schools (%)**
India	17.7	19.4	9.8	11.3
Rajasthan	19.0	22.5	14.9	20.5
Rajsamand	13.2	10.9	15.7	17.8
Udaipur	5.8	4.9	53.8	69.9

Tables 5.2 and 5.3 show that SC, ST and female children are more likely to be enrolled in government schools than non-government schools and therefore to be rights-holders in the MDMS, reflecting known patterns in enrolment in government and private schools (Section 4.3). However, the composition of rights-holders varies; girls do not comprise the majority of rights-holders in the study districts and STs account for a far higher proportion of enrolled students in Udaipur district than in Rajsamand district, Rajasthan and India.

Attention now turns to the sampled schools. Of the 4,312 students enrolled at the schools, 2,397 (55.6%) were male and 1,915 (44.4%) were female.[5] Table 5.4 presents the gender and caste composition of the enrolled students. Boys comprised the majority of rights holders in the sampled schools in Girwa, Kotra and Khamnor, but not in Kumbhalgarh. The gendered pattern of enrolment indicates that a number of girls must not be attending school (see Section 5.7.2). The majority (63.1%) of students were ST, although as one would expect given the variation in the caste composition at each location (Section 3.2.4), the caste-composition of rights-holders varies by location. Muslims accounted for a small proportion of the enrolled students at the sampled schools.

[5] The complete data is provided in Appendix E.2.

Table 5.4: Students at sampled schools 2014-2015 (NUEPA, 2016)

		Girwa	Kotra	Khamnor	Kumbhalgarh	Total
Enrolled Students		1,372	1,292	774	874	**4,312**
Gender (%)	Male	55.2	58.8	58.5	48.7	**55.6**
Caste (%)	SC	5.2	0.2	14.1	8.5	**6.0**
	ST	70.3	95.7	41.7	22.9	**63.1**
	OBC	13.0	0.7	17.8	44.7	**16.6**
	Muslim	5.0	0.0	4.7	0.0	**2.4**
	Other	6.6	3.4	21.7	23.9	**11.9**
Gender and Caste (%)	SC Male	46.5	66.6	68.8	47.3	**56.4**
	ST Male	58.2	59.2	54.2	51.5	**57.7**
	OBC Male	50.6	33.3	66.6	45.8	**50.8**
	Muslim Male	62.3	0	58.3	0	**61.0**
	Other Male	52.5	52.3	53.6	52.2	**49.5**

Primary data from the household surveys provides further insight into the background of the rights-holders in the study area. The full dataset is provided in Appendix E.2; here, results by block and case study are shown in Tables 5.5 and 5.6. The majority of the sampled households in all blocks and case studies belong to STs, except for CS1. The highest number of ST households were in Kotra and all households in CS3 were ST. Literacy levels were far lower in the sampled households than the area averages; 37.9% of respondents in HS1 and 26.1% in HS2 were literate, compared to 63.1% in Rajsamand and 61.8% in Udaipur (GOI, 2011a). Sampled households were often engaged in irregular jobs. In rural areas, households were most commonly self-employed in agriculture alongside casual labour. In urban areas, households were most commonly engaged in casual labour alongside self-employment. Fewer than 10% of those in each sample were engaged in regular employment. Although the type of PDS card possessed is far from a perfect indicator of poverty due to inclusion and exclusion errors in the PDS (Section 2.4.3), the proportion of people with a BPL card reflects the other indicators of development.

Overall, based on these indicators of development, one expects there to be a need for increased access to food among the rights-holders in the sample.

Table 5.5: The characteristics of the sampled households, household survey one

		Frequency				Total	
		Girwa	**Kotra**	**Khamnor**	**Kumbhalgarh**	**Freq.**	**%**
Caste	General	10	1	23	22	56	13.1
	SC	16	1	16	9	42	9.8
	ST	66	93	56	61	276	64.3
	OBC	9	3	14	9	35	8.2
	Muslim	12	8	0	0	20	4.7
Education	Illiterate	53	79	54	84	270	62.1
	Literate < primary	14	8	9	1	32	7.4
	Grade V	18	10	9	19	56	12.9
	Grade VIII	17	10	22	2	51	11.7
	Grade X	10	2	4	4	20	4.6
	> Grade X	1	1	3	1	6	1.4
Employment	Self-employment agriculture	16	17	10	11	54	12.6
	Casual	17	18	24	22	81	18.9
	Self-employment non-agriculture	33	4	10	2	49	11.4
	Regular	10	6	6	5	27	6.3
	Self-employment agriculture/casual	27	53	36	58	174	40.7
	Other combinations	10	9	12	12	43	11.1
PDS card	Above Poverty Line (APL)	52	27	50	45	174	40.7
	BPL	43	77	41	64	225	52.6
	AAY	3	0	0	2	5	1.2
	No card/do not use	15	6	3	0	24	5.6

Table 5.6: The characteristics of the sampled households, household survey two

		Frequency				Total	
		CS1	**CS2**	**CS3**	**CS4**	**Freq.**	**%**
Caste	General	2	0	0	8	10	6.5
	SC	4	2	0	4	10	6.5
	ST	9	32	34	37	112	72.3
	OBC	16	34	1	1	21	13.5
	Muslim	2	37	0	0	2	1.3
Education	Illiterate	21	25	35	35	116	73.9
	Literate < primary	0	1	0	0	1	0.6
	Grade V	1	2	0	11	14	8.9
	Grade VIII	6	3	0	4	13	8.3
	Grade X	3	6	0	0	9	5.7
	> Grade X	3	1	0	0	4	2.5
Employment	Self-employment agriculture	0	9	4	7	17	10.1
	Casual	14	16	3	9	36	21.4
	Self-employment non-agriculture	17	4	0	1	21	12.5
	Regular	8	6	0	2	14	8.3
	Self-employment agriculture/casual	0	2	29	27	60	35.7
	Other combinations	4	2	4	8	14	8.3
PDS card	APL	11	12	5	10	38	23.9
	BPL	1	22	32	28	93	58.5
	AAY	0	2	0	0	2	1.3
	No card/do not use	23	2	0	1	26	16.4

Across the four case studies, the average monthly household income was INR 4,741 (Table 5.7). The income of respondents was thus lower than the state average monthly *per capita* income in 2013-2014 of INR 5,497.83 (GOI, 2015b).

Table 5.7: Monthly income (number of respondents)

Case Study		Monthly Income (INR)					
		<2500	**2500-<5000**	**5000-<7500**	**7500-<10000**	**10000+**	**Average**
CS1		1	9	13	8	5	6676
CS2		6	13	14	3	2	4809
CS3		16	14	5	0	0	2823
CS4		0	27	19	1	1	4677
Total	**Freq.**	21	63	51	12	8	4741
	%	14.6	40.1	32.5	7.6	5.1	-

Overall, data from the household surveys shows that the rights-holders in the sample had illiterate parents and were from households with low-incomes and irregular jobs, particularly in the sampled locations in Kotra and in CS3. The trends in enrolment in the sampled schools support the assumption that government schools and therefore the MDMS are for disadvantaged groups. Of course, these characteristics are the very reason that children attend MDM-eligible schools rather than private schools. Yet, examining the background of students at eligible schools is useful, as the data shows that although there are commonalities, rights-holders are not a homogenous group; socio-economic status varies within and between locations. Given this variability, one might also expect there to be differences in food-based needs among the rights-holders, which is now examined.

5.2.2 Food Needs

Food Consumption

Table 5.8 presents the results from the food consumption survey in HS1. Staples were consumed daily by all but one participant. Most commonly, milk, sugar, oil and condiments were consumed daily, pulses and vegetables were consumed twice in the previous seven days and fruit and meat were not consumed. The daily guidelines on dietary intake in India (NIN, 2011) advocate daily intake of cereals, pulses[6], milk, vegetables and fruit. Evidently, most of the sampled households were not consuming pulses,

[6] The NIN suggest that one portion of pulses can be swapped for meat/fish/eggs.

vegetables and fruit daily. Meat consumption was also infrequent, although is higher than one would expect given that only 79 respondents (18.6%) reported that they were not vegetarian.

Table 5.8: Food Consumption Score results from household survey one- the number of people that reported each frequency for each food group (*n*=427)

Food Group	**Number of times consumed past 7 days**							
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Staples	0	0	0	0	0	1	0	426
Pulses	24	75	153	102	46	11	2	14
Vegetables	23	72	100	77	49	34	12	60
Fruit	269	128	17	7	4	1	0	1
Meat/fish	328	83	6	4	3	1	0	2
Milk/dairy	118	7	15	14	21	15	23	214
Sugar	4	1	2	10	5	5	14	386
Oil	13	4	4	15	12	11	11	357
Condiments	0	0	3	5	5	2	7	405

Kmeans cluster analysis identified four clusters of dietary patterns in the food consumption survey results (Table 5.9). Cluster one exhibits the least varied diet with the lowest means for pulses, vegetable, fruit, sugar, oil and condiment consumption. Cluster two exhibits the most varied diet, followed by cluster four. The diversity of consumption in cluster three is in between the first and fourth cluster, yet has a lower mean milk consumption than cluster one.

Table 5.9: Cluster analysis of food consumption frequency, household survey one

Food group	**Cluster Means (Frequency of consumption)**			
	1 ***n*=37**	**2** ***n*=98**	**3** ***n*=118**	**4** ***n*=174**
Staple	7.0	7.0	7.0	7.0
Pulses	1.5	2.7	2	2.7
Vegetable	1.6	6.2	2.0	2.6
Fruit	0.0	1.0	0.2	0.5
Meat and fish	0.1	0.6	0.1	0.4
Milk	1.3	6.6	0.4	6.6
Sugar	4.9	7	6.9	6.8
Oil	1.8	6.9	7.0	6.7
Condiments	5.7	7.0	7.0	6.9
Sum of squares	17.1	7.6	5.9	6.2

The distribution of clusters by block is shown in Table 5.10. A chi-square test of independence found a significant relationship between cluster and location, $\chi^2(9)=92.395$, $p=<0.001$. Pairwise comparisons found significant differences between all blocks ($p=<0.01$). Notably, nearly two-thirds of respondents in Girwa were in cluster four, nearly half of respondents in Khamnor were in cluster two and nearly half of respondents in Kotra were in cluster three. The distribution among clusters indicates that respondents in Girwa had the most diverse diets, followed by respondents in Khamnor, Kumbhalgarh and Kotra. This pattern of food consumption reflects the pattern of development indicators examined in Section 2.4; the highest proportion of people in the sampled locations that were literate and engaged in main work were found in Girwa, followed by Khamnor, Kumbhalgarh and Kotra.

Table 5.10: Block categories by cluster, household survey one

Block	**Cluster 1**		**Cluster 2**		**Cluster 3**		**Cluster 4**	
	Freq.	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
Girwa	0	0	20	17.9	21	18.8	71	63.4
Kotra	20	18.3	14	12.8	48	44.0	27	24.8
Khamnor	7	7.2	44	45.4	15	15.5	31	32.0
Kumbhalgarh	10	9.2	20	18.3	34	31.2	45	41.3

Table 5.11 presents the food consumption results from HS2. Staples were consumed daily. Typically, milk was consumed daily, pulses were consumed twice in the previous seven days, vegetables were consumed once and fruit and meat were not consumed. Again, the frequency of the intake of pulses, vegetables and fruit was inadequate. Meat consumption was also infrequent, although 106 households (68.4%) were vegetarian. The pattern of consumption varied between case studies (see Appendix E.4.1 for the full data set). Across all food groups, the frequency of consumption was the lowest at CS3.

Table 5.11: Food Consumption Score results, household survey two (n=158)

Food Group	**Number of times consumed past 7 days**							
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Staples	0	0	0	0	0	0	0	158
Pulses	24	43	49	35	4	2	0	1
Vegetables	11	44	39	24	9	2	2	26
Fruit	85	62	5	1	1	0	0	4
Meat/fish	116	37	1	2	0	0	0	2
Milk/dairy	27	0	4	6	9	1	10	100
Sugar	3	0	0	2	6	1	4	141
Oil	1	1	10	10	9	2	3	121
Condiments	1	0	1	1	1	0	3	150

Cluster analysis identified three clusters (Table 5.12). Cluster one had the lowest mean level of consumption for all food groups excluding staples. Cluster two had the highest mean levels particularly of vegetable consumption.

Table 5.12: Cluster analysis of food consumption frequency, household survey two

Food group	Cluster Means (Frequency of consumption)		
	1 ***n*= 35**	**2** ***n*=37**	**3** ***n*=94**
Staple	7.0	7.0	7.0
Pulses	1	1.9	2.1
Vegetable	1.2	6.5	2.1
Fruit	0.1	1.5	0.6
Meat/fish	0.2	0.9	0.3
Milk	0.8	6.8	6.5
Sugar	5.6	7	7.0
Oil	3.7	7.0	6.8
Condiments	6.4	7.0	7.0
Sum of squares	17.0	10.7	4.8

The distribution of clusters by location is shown in Table 5.13.[7]

Table 5.13: Case studies and clusters, household survey two

Case Study	Cluster 1		Cluster 2		Cluster 3	
	Freq.	**%**	**Freq.**	**%**	**Freq.**	**%**
CS1	3	10.3	1	3.4	25	86.2
CS2	3	7.3	20	48.8	18	43.9
CS3	27	75.0	0	0.0	9	25.0
CS4	4	8.7	0	0.0	42	91.3

A chi-square test found that case studies and clusters were not independent, $\chi^2(6)=110.74$, $p=<0.001$. Pairwise comparisons found significant differences between all case studies ($p=<0.001$) except for between CS1 and CS2 ($p=0.457$). Notably, the majority of households at CS1 belong to cluster two, the majority of households at CS3 belong to cluster one and the majority at CS4 belong to cluster four. Households at CS2 are mostly split between clusters two and three. This distribution indicates that

[7] Clusters are also compared to HFIAS categories in Appendix C.7

respondents at CS2 had the most diverse diets, followed by CS4 and CS1. Respondents at CS3 had, by far, the least diverse diets. The considerably worse situation at CS3 reflects the considerably worse indicators of development (see Section 3.2.5) as well as its remote location.

There are two key conclusions to be drawn from the results presented in Tables 5.8-5.13. Firstly, these results show that most households had an inadequate diet, lacking in vegetables, fruit and pulses. Thus, there is a general need for increased dietary diversity among these households. Yet, secondly, this need is not identical across households. Within the category of 'rights-holders', food consumption at home varies considerably. The quality of diets varied both within and across locations. Needs relating to food are therefore not homogenous across rights-holders.

Meals

To reach their recommended daily intake, children would need to consume two well-balanced meals at home and a MDM that adheres to guidelines (Section 4.4.1). Indeed, the GOI envisage that the MDM is one of three meals per day. However, the inadequate diet shown in the FCS results indicates that, in the study area, food consumption at home may not address the shortfalls left by the MDMS. To explore this issue further, I asked parents and students how many meals their child/they ate per day *including* the MDM. I also calculated the number of meals reported in the 24-hour food consumption recall. As shown in Table 5.14, a significant number of children consumed only two meals per day, including the MDM. The number of meals consumed varied spatially (the full data is given in Appendix E.4.2). For example, in HS1 the highest proportion of people consuming two meals per day were found in Khamnor, followed by Girwa, Kotra and Kumbhalgarh. The results from the student survey and the recalls show that students consumed two meals most frequently in CS3, followed by CS4, CS1 and CS2.

Table 5.14: Number of meals consumed per day

Source	**Number of meals per day (including MDM)**									
	1		**2**		**3**		**4**		**5**	
	Freq.	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
HS1	9	2.4	213	56.3	120	31.7	35	9.3	1	0.3
Student Survey	12	4.1	96	33.0	155	53.3	21	7.2	7	2.4
Household Recall (Cases)	12	2.8	296	70.0	115	27.2	0	0	0	0
Student Recall (Cases)	4	1.0	220	57.1	161	41.8	0	0	0	0

Children consuming two meals a day tended to consume lunch and dinner and miss breakfast. Of the 336 students surveyed, 135 (40.2%) reported that they consumed breakfast before coming to school, 73 (21.7%) said that they sometimes ate breakfast and 128 (38.1%) said that they never ate breakfast. The food consumption recall data, however, showed that breakfast consumption is more complex than a simple 'yes' or 'no'. From the recall data, four types of breakfast can be identified: no food or drink; only a drink, typically tea; a drink and a snack item such as a small packet of biscuits; and a substantial breakfast such as a *roti* or a *paratha*, usually with tea. A substantial breakfast was consumed in just 20% of the cases in the recall (Table 5.15).

Table 5.15: Breakfast consumption from 24-hour recall

		Breakfast consumption (number of cases)			
Case Study		**Nothing**	**Drink only**	**Snack**	**Substantial**
CS1		2	40	35	19
CS2		6	15	9	34
CS3		49	28	0	1
CS4		22	111	5	30
Total	**Freq.**	79	194	49	84
	%	19.5	47.8	12.1	20.7

Although the precise figures vary, Tables 5.14 and 5.15 show that approximately half of students consumed two meals a day including the MDM. Among those consuming three meals a day, breakfast was often inadequate.

From the two recalls, a typical pattern of consumption can be determined based on the most commonly consumed food types (Table 5.16). Notably, the typical food intake of participants in CS3 is insufficient in both quantity and variety.

Table 5.16: Typical food consumption at home from recalls

Meal	Recall	CS1	CS2	CS3	CS4
Breakfast	Household	Tea	Tea, 1 *roti*	Nothing	Tea
	Student	Tea, 3 toast	Tea, 1 *roti*	Nothing	Tea
Dinner	Household	2 *rotis*, 1 cup of vegetables	1.5 *rotis*, 0.5 cup of vegetables	1 *roti*, chilli paste	2 *rotis*, 1 cup of *kadhi*
	Student	2 *rotis*, 1 cup of vegetables	2 *rotis* and 1 cup vegetables	2 *rotis*, 1 cup vegetables	2 *roti*, 1 cup *dal*
Snacks	Household	Tea	Tea	Nothing	Tea
	Student	Nothing	*Namkeen*	Nothing	Nothing

As discussed in Section 3.3.6, nutritional information cannot be accurately determined from the recall. However, due to the consistency of *roti* sizes at each location, the calories from *roti* can be calculated. One *roti* provided approximately 140 kcal at CS1, 170 kcal at CS2 and 155 kcal at CS3 and CS4. *Roti* alone therefore provided approximately 560 kcal at CS1, 765 kcal at CS2, 465 kcal at CS3 and 620 kcal at CS4. As shown in Table 5.16, *rotis* account for the majority of the food consumed by a typical child on a typical day. When the calorie content of *rotis* are compared to the RDAs outlined in Appendix D.1 and the MDM norms, a potential calorie deficit is indicated. For example, in CS3, 465 kcal of *roti* and 450 kcal of MDM would total 915 kcal. To reach the RDA of calories (2,190 kcal), a male child at the lower primary level would need to consume an additional 1275 kcal. As it is unlikely that this quantity of calories would come from food that is not in the MDM and is not a *roti*, it is unlikely that the child would consume enough calories. Although these calculations are approximate, they suggest that there may be inadequacies in food intake in the study area. Certainly, this is an avenue for further research.

When the results presented in this section are compared to the norms and theoretical contribution of the MDMS to dietary intake outlined in Chapter 4, three findings emerge. Firstly, in the study area, the MDM was often one of only two meals consumed per day, not one of three. The GOI's assumption that the MDMS is one of three meals consumed a day is therefore flawed. Food consumption at home was also lacking in both quantity and diversity. Therefore, one can deduce that the actual contribution of the MDMS to overall dietary intake will be different from the theoretical contribution outlined in Chapter 4. Second, the contribution of the MDM to the intake of food varied between children. For some children, the MDM is one of three meals per day, for others it is one of two. The amount of food required also varies depending on age and gender. Finally, in Section 4.2, I outlined that an objective of the MDMS is to address classroom hunger. From the consumption patterns, however, it is clear that those

children who do not consume breakfast would be hungry for the duration of the morning. The MDMS therefore can only address classroom hunger that would have occurred after lunch.

Food Security

To further understand the food-based needs of rights-holders, I now examine household food insecurity. More than half the respondents in HS1 had experienced food insecurity in the previous month. The distribution of affirmative responses shows the expected decrease by question (Figure 5.1). This shows food security levels in the sampled households; it is not reflective of food security status across the blocks or districts.

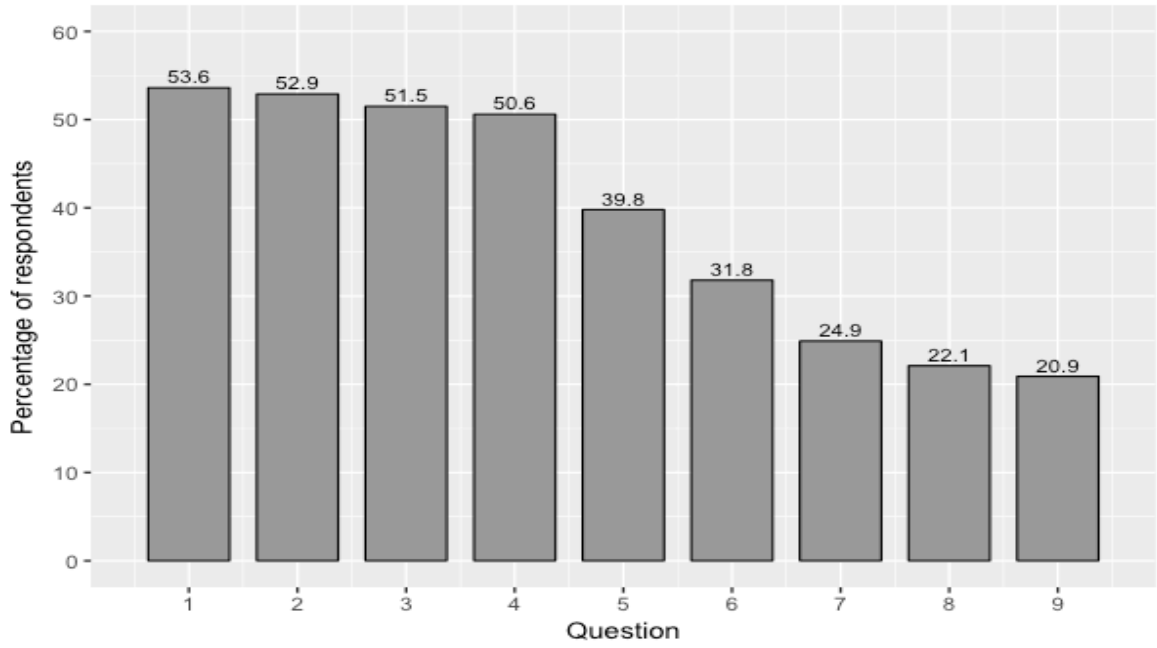


Figure 5.1: Affirmative answers in the HFIAS, household survey one (*n*=425)

The frequency with which people experienced the situation described in each question also decreased with severity, except for questions two and four (Figure 5.2). In total, 53.6% of households had experienced anxiety about food (domain one), 51.7% had consumed inferior quality food (domain two) and 27.9% had experienced reduced food intake (domain three).

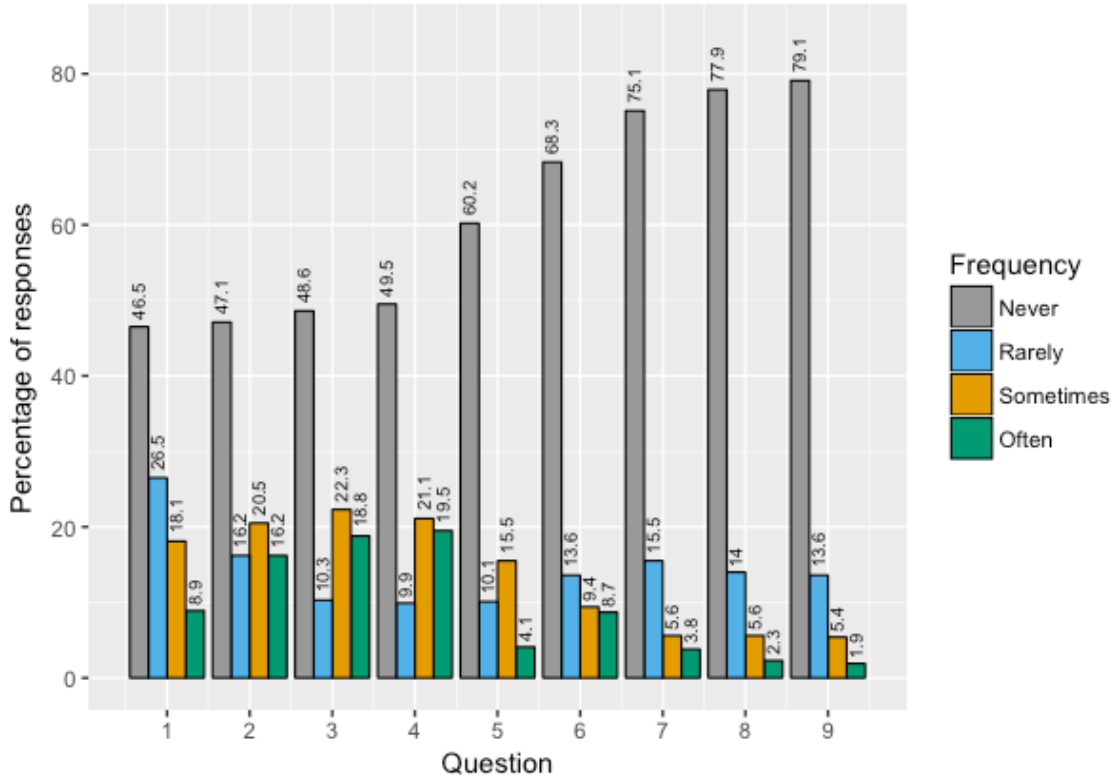


Figure 5.2: Answers to the HFIAS, household survey one (n=425)

Figure 5.3 shows the proportion of the sample in each food security category as determined by the pattern of answers in the HFIAS. Overall, 198 households (46.6%) were food secure and 227 (53.4%) were food insecure. Food security was experienced the most commonly in Girwa and the least commonly in Kotra. A Kruskal-Wallis test showed a significant difference between blocks, $H(3)=71.165$, $p=<0.001$. Experiences of food insecurity also varied by sampled location (see Appendix E.4.3).

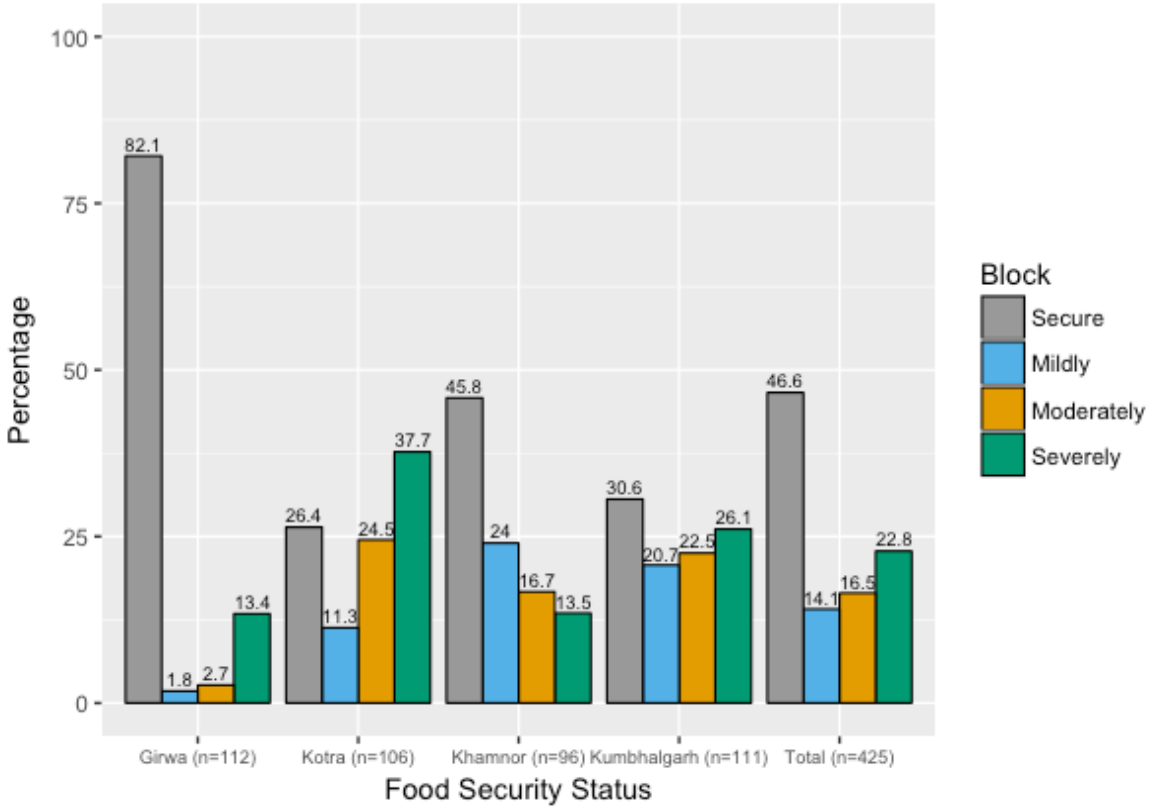


Figure 5.3: Food security status, household survey one (*n*=425)

An ordinal regression showed location, education, caste and PDS card had a significant effect on HFIAS categories (Table 5.17). The trends by location are shown in Figure 5.3. A higher proportion of literate respondents than illiterate respondents were food secure; 68.4% compared to 34.4%. A higher proportion of general and OBC castes were food secure than SCs and STs; 80.4% of general castes and 72.7% of OBCs were food secure, compared to 56.1% of SCs and 33.7% of STs. A higher proportion of APL households were food secure compared to BPL households; 59.2% compared to 35.2%. In each case, the group with higher levels of food insecurity also had higher levels of severe food insecurity. For example, 14.4% of APL households were severely food insecure compared to 32.0% of BPL households.

Table 5.17: Ordinal regression output: Food security category

Variable	Value	Standard Error	P value
Location	0.437546	0.093721	<0.001***
Household size	0.022743	0.037226	0.541
Employment	-0.006951	0.047751	0.884
Education	-0.331800	0.062965	<0.001***
Vegetarian	0.155570	0.253568	0.540
Caste	0.533465	0.136783	<0.001***
PDS card type	0.575127	0.172218	<0.001***

***p<0.001

Food insecurity was experienced more frequently by the respondents in HS2 than HS1 (Figure 5.4). In total, 145 respondents (90.1%) had experienced food insecurity in the previous month. In contrast to HS1, the most common experience was consuming a limited variety of food (question three), a trend also observed in Tanzania by Knueppel *et al*. (2009).

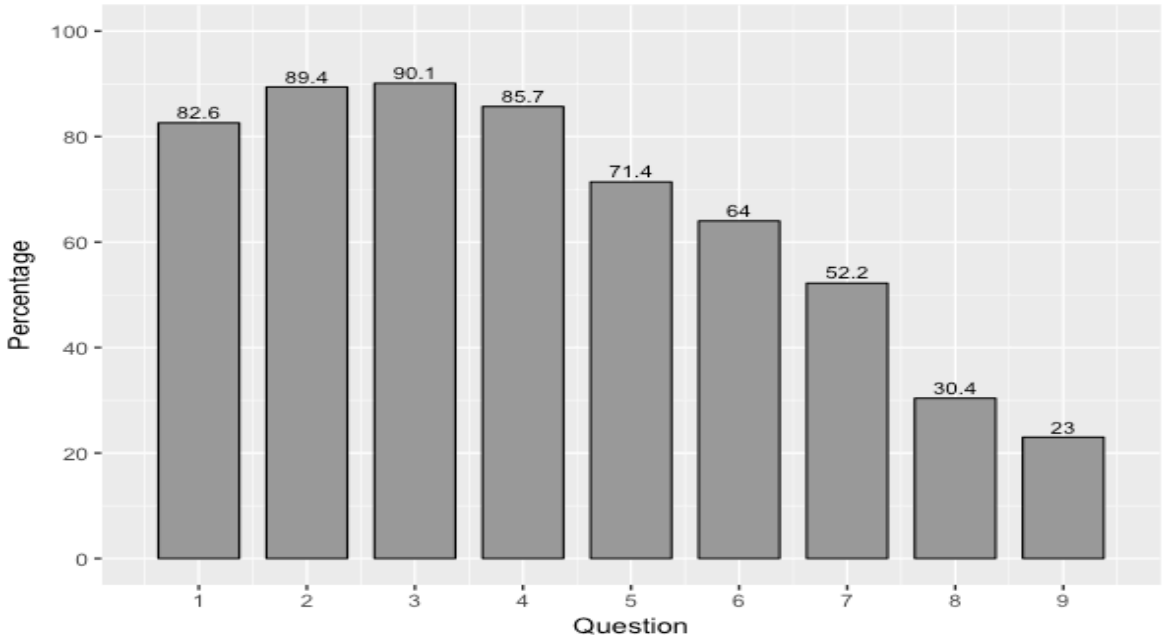


Figure 5.4: Affirmative answers in the HFIAS, household survey two (*n*=161)

The same pattern evident in Figure 5.4 is also shown in the responses to each question (Figure 5.5); the situation described in question three was experienced by the most people.

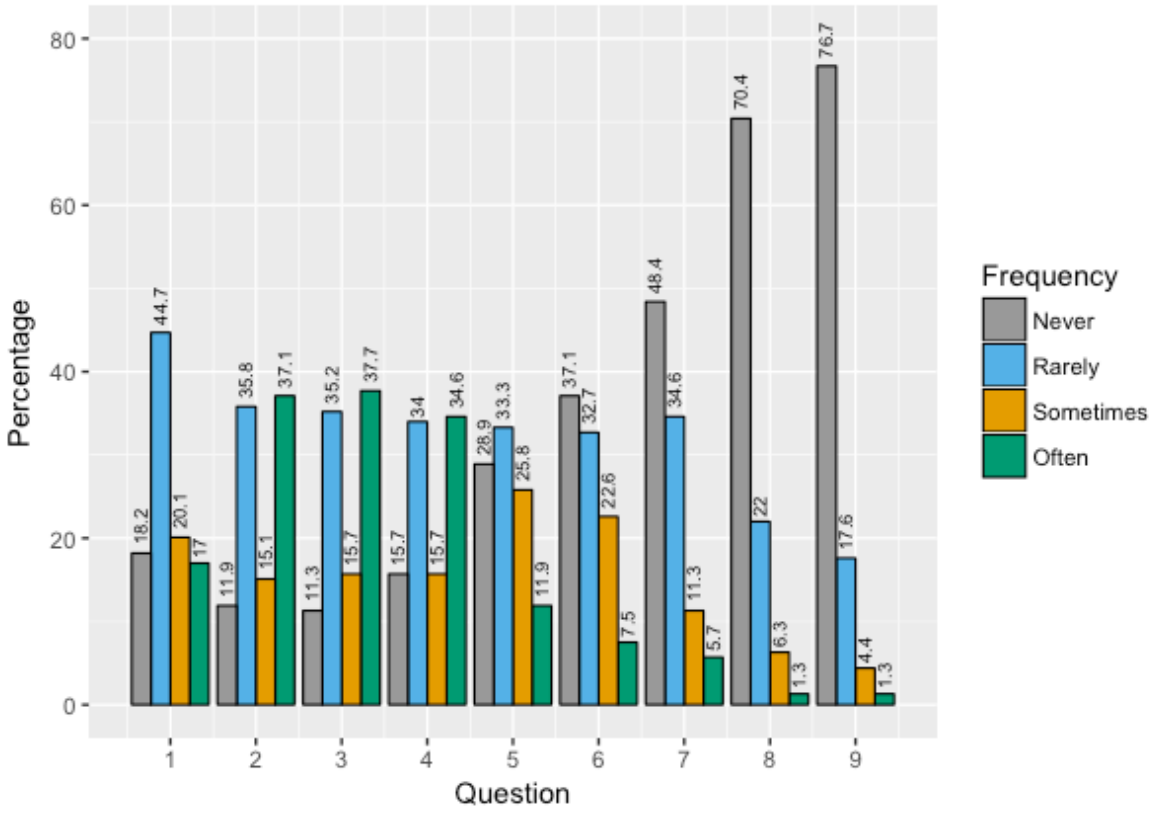


Figure 5.5: HFIAS responses, household survey two

Overall, 82.6% of respondents in HS2 experienced domain one (anxiety), 88.4% experienced domain two (quality) and 48.2% experienced domain three (food intake). Only 17 households (10.6%) were food secure. (Figure 5.6). A Kruskal-Wallis test found a significant difference between case study, $H(2)=25.077$, $p=<0.001$. Respondents at CS2 were the most food secure and respondents at CS3 were the most food insecure (Figure 5.6).

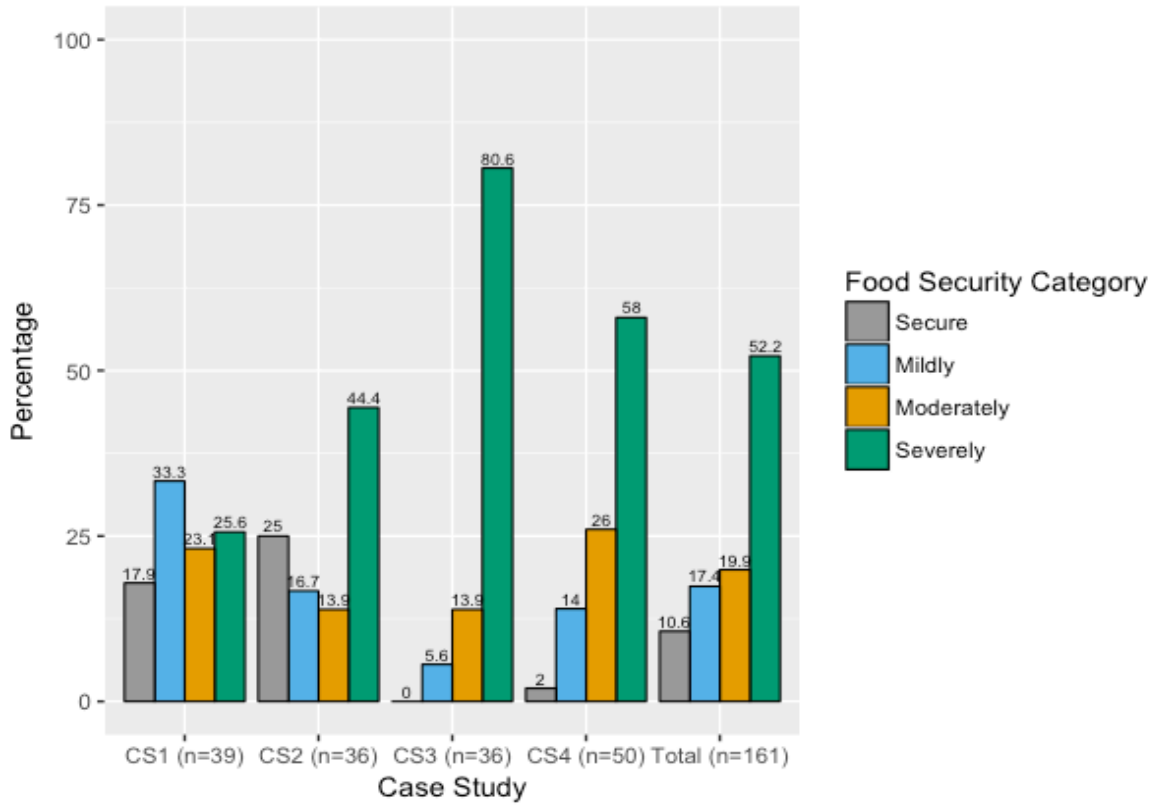


Figure 5.6: Food Security Status, household survey two

The results from the HFIAS show that a considerable proportion of the households that rights-holders belonged to were food insecure, particularly at the case studies. The findings also show that food insecurity is not ubiquitous across rights-holders. Even among those experiencing food insecurity, the severity varies.

Summary

Two key trends emerge from the findings presented above. Firstly, food insecurity and inadequate food consumption were prevalent among the sampled households, indicating that those targeted in the MDMS have a need for the scheme. Second, both food consumption and food insecurity vary between households and across locations. Thus, among 'rights-holders', food needs vary. As shown in Chapter 4, the MDM norms are fixed. Therefore, the MDMS is not designed in a manner which addresses these varying needs. For example, the food provided in CS1 and CS3 should, in principle, be almost the same. Yet, as I have shown, there are considerable differences in food consumption and food security between the two case studies. The design of the MDMS only reflects differences in needs between lower and primary students; differences between households or locations are not reflected in the design of the scheme or its implementation. Dietary needs have therefore been simplified and homogenised in the MDMS.

5.2.3 Perceived Impact

The aim of this research was not to quantitatively examine the impacts of the MDMS in terms of the fulfilment of objectives (see Section 2.8). Instead, I examined the perceived benefits of the MDMS to assess whether rights-holders and their representatives perceived the scheme to be beneficial and whether perceptions varied. In the household surveys, we asked participants whether they thought that the MDMS had positively impacted their child(ren) and household. Table 5.18 presents the results from HS1 and HS2. In both, almost the same proportion of participants acknowledged a positive impact on enrolment and attendance. In HS1 there was a marked decline in the perceived impact on other areas. The results from HS2 do not show the same decline and instead responses vary depending on the impact.

Table 5.18: Perceived impact of the MDMS[8]

Impact	HS1 % of respondents (*n*=414)			HS2 % of respondents (*n*=156)		
	Yes	No	Don't Know	Yes	No	Don't Know
Enrolment	57.2	34.5	8.2	53.8	43.6	2.6
Attendance	57.5	34.8	7.7	58.3	39.1	2.6
Performance	46.9	42.3	10.9	55.8	41.0	3.2
Health of child	43.5	50.7	5.8	57.7	38.5	3.8
Food at home	33.3	56.5	10.1	67.3	32.1	0.6
Money at home	37.4	54.3	8.2	55.8	22.3	1.9
Caste relationships	38.6	48.3	13.0	55.1	40.4	4.5
More time	-	-	-	55.1	42.3	4.5

Spearman's rank correlations were conducted to examine whether perceptions were internally consistent, i.e. whether the same people in the sample were answering yes across different impacts. In HS1, impacts were highly correlated (Appendix E.5), particularly for similar types of impact such as enrolment and attendance, r_s=0.99, p=<0.001. The same trend was also found for HS2 (Appendix E.5).

Table 5.19 presents the perception of impact from HS1 compared to household food security status. A chi-square test of independence shows significant differences between the perception of impact and food security status for enrolment ($\chi^2(3)=11.997$, p=0.007), attendance ($\chi^2(3)=11.712$, p=0.008), performance ($\chi^2(3)=21.042$, p=<0.001) and child health ($\chi^2(3)=13.373$, p=0.003). For enrolment, attendance and performance, the percentage of respondents answering 'yes' increases with the

[8]Having more time was mentioned repeatedly during the first stage of research and was therefore added.

increasing severity of food insecurity. The highest (or joint highest) percentage of respondents answering yes for a positive impact on child health and the amount of food were severely food insecure; however, the second highest proportion answering yes were food secure. Thus, whilst there is a general relationship that the most food insecure people considered the MDMS to have a positive impact, the exact trend varies depending on the impact in question.

Table 5.19: Impact as reported in household survey one

Impact	**Food secure**		**Mildly insecure**		**Moderately insecure**		**Severely insecure**	
	Freq.	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
Enrolment	95	53.4	41	69.5	35	66.0	67	72.8
Attendance	96	53.3	41	68.3	35	66.0	67	72.8
Performance	80	45.7	21	37.5	32	61.5	73	73.0
Child Health	89	48.4	24	39.3	22	41.5	46	48.4
Food at home	72	40.9	23	38.3	19	35.8	43	45.7
Money at home	72	40.7	22	36.7	20	37.7	39	41.9
Equality	80	47.6	24	42.9	18	36	39	43.82

I also assessed perceptions of impact using qualitative methods. Interviewees and focus group participants considered the MDMS to have a greater impact than was reported in the surveys; perhaps indicative of the limits of the survey to examine this issue. Parents perceived the MDMS to have a positive impact on enrolment, attendance and child health and thought that the MDMS helped families to save food. The focus groups at CS3 particularly stressed the positive impact on enrolment and attendance. For example, one participant stated that they previously sent their children to work in Gujarat, but now, because of the MDMS, sent them to school. The benefit most commonly cited by students across all case studies was that the MDMS removed the need to bring a tiffin[9] to school. For example, a grade VIII student at CS1 wrote: 'I do not bring a tiffin from home... for poor children who do not have food available at home, this is the benefit'.[10] The impact of the scheme was, however, affected by implementation. Participants at CS2 stated that the scheme would be more helpful if more food was given and participants at CS3 stated that the scheme was only helpful when the children actually received food.

[9] In HS1, 19 of 402 respondents reported that their child took a tiffin (a layered container in which lunch is carried from the home) to school and 25 said that they did sometimes. Observation showed, however, that tiffins only supplemented the MDM. For example, an additional *roti* or leftover food might be used to supplement the quantity or chutney might be used to improve the taste.

[10] All quotations are provided in English. The original Hindi is provided in Appendix E.3.

Participants commonly commented that the MDMS particularly benefited the 'poor', mentioned both by those who did and did not identify themselves as poor. For example, in CS1, the mother at household 12 stated that 'all families benefit from the MDM. For poor children, hot nutritious food is available which is not available at home'. The same sentiment was echoed at CS2. Unique to CS2, however, was the recognition that the MDMS benefited students walking to school from several kilometres away. For example, one student wrote: 'for those children coming from far away the meal is very beneficial. Because in our school children come from five kilometres away. They are tired and eat the food'. At CS3, all participants identified themselves as poor. The MDM was perceived to be beneficial due to the paucity of food, particularly varied food, at home (a trend confirmed by the food-consumption recall results presented in Table 5.16). Respondents reported that, because of the MDMS, they could save food and that their children could eat better. At CS4, parents and students recognised the relief that the MDMS provided for the poor, especially those with large families. A grade VII student wrote: 'If school food stopped, then there would be a loss for us… from the mid day meal there is the effect that for poor children, if there is no *roti* or vegetable in their home, they can eat at school'. The positive impact of the MDMS on the poor was also recognised by teachers and CCHs. Eight teachers considered the objective of the MDMS to be to benefit those poor students who could not get enough food at home, two said it existed specifically to benefit undernourished children and two cited both reasons. Five cooks also mentioned that the MDMS benefited those children not receiving enough food at home.

The qualitative data suggests that the meal particularly benefitted those considered poor and needy and those without sufficient food at home, once again showing variation in needs across rights-holders.

5.3 The Missing Millions

5.3.1 Enrolment and Consumption

Of course, the MDMS can only benefit students if they consume the meal. The 2015-2016 AWPBs report that 131.6 million students were eligible to receive the MDM and 102.5 million (77.8%) consumed the meal. U-DISE data shows that 133.7 million were eligible to receive the MDM (NUEPA, 2016), of which 100.3 million (75.0%) consumed the meal (MHRD, 2016g). Although figures vary annually and between data sources, there are approximately 30 million 'missing'[11] children in the MDMS. Given the size of this figure, it is important to understand who these 'missing' children are. In the sections that follow, I consider the extent of this issue in the study districts and examine the reasons

[11] The phrase 'missing millions' is taken from Poppendiecks' 2010 book on school lunches in America. In the United States, millions of children eligible to eat a subsidised school lunch choose not to for a multitude of reasons.

for the disparity between eligibility and consumption. Drawing on the capability approach, I explore whether children not consuming the meal is a product of an absence of capability or choice.

The difference between reported enrolment and consumption varies geographically (Figure 5.7).

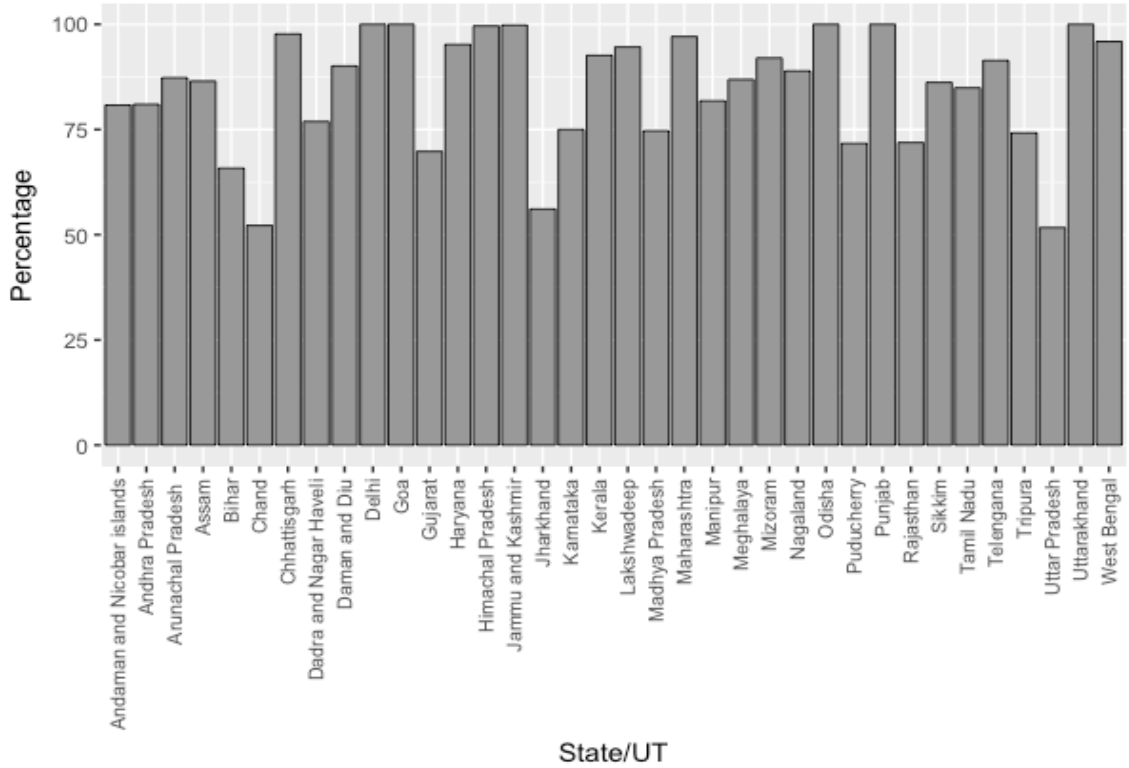


Figure 5.7: The percentage of enrolled students consuming the MDM in 2015-2016 (data from AWPBs for 2016-2017)

In Table 5.20, I present the enrolment and consumption figures for Rajasthan. In 2015-2016, the proportion of students consuming the meal was higher than in 2013-2014, but had declined since 2014-2015. Still, consumption as a proportion of enrolment was lower in Rajasthan and the study areas than the national average (77.8%). In the study districts, just under three quarters of eligible students consumed the MDM.

Table 5.20: Enrolment versus consumption from AWPBs (GOR, 2013; 2014; 2015).

Location	Year	Enrolment	Consumption	% of enrolled students consuming the MDM
Rajasthan	2013-2014	6,770,832	4,651,931	68.7
	2014-2015	6,250,214	5,003,140	80.0
	2015-2016	6,283,879	4,518,987	71.9
Rajsamand	2013-2014	145,566	104,571	71.8
	2014-2015	146,405	109,555	74.8
	2015-2016	151,160	108,825	72.0
Udaipur	2013-2014	362,426	258,669	71.4
	2014-2015	363,302	293,929	80.9
	2015-2016	363,241	260,832	71.8

Considerable differences between the number of enrolled students and the number of students consuming the meal were observed at the case study schools (Table 5.21).[12]

Table 5.21: Students consuming the meal at the case study schools as a proportion of enrolled students

Case Study	Proportion of enrolled students observed consuming the MDM (%)		
	Minimum	Maximum	Average
CS1	29	85	61
CS2	37.6	51.2	44
CS3	16.7	61.9	45.2

The 2015 report on the MDMS by the Comptroller and Auditor General of India (CAG) and my primary data indicate three reasons why consumption is considerably lower than enrolment. First, enrolment figures may be inaccurate. Second, children may be enrolled but may not attend school or may choose not to eat the meal. Third, the children may be unable to eat the meal because it is not provided. I now examine these reasons in turn.

5.3.2 Enrolment

Enrolment figures in India are often inflated (Drèze and Goyal, 2003; Drèze and Kingdon, 2001; Kingdon, 2007; PROBE, 1999). Teachers may exaggerate figures to justify the existence of a school

[12] Unfortunately, such figures are not available for CS4, as my assistants forgot to record the data.

and thus their job or to access additional funding (Kingdon, 2007; PROBE, 1999; Tooley and Dixon, 2006). Figures may also be inaccurate as some children attend unrecognised private schools but are enrolled in government schools to obtain official certificates (Drèze, 2017; PROBE, 1999). Attendance figures may also be inflated to access additional MDMS funds (Bhatty, 2015). I observed teachers inflating enrolment and attendance figures during the fieldwork. This was most obvious at school 19. On the day of our visit, the head-teacher reported an enrolment of 117. The school was in a very small village where it appeared unlikely that 117 people lived, let alone 117 children were of primary school-going age. The head-teacher reported an attendance of 77, yet only 22 students were present.[13] At the time, an inflation of 55 students would have amounted to additional MDMS funding of INR 197.45 per day or INR 45,610.95 per year. In the absence of frequent monitoring (see Chapter 8), the teacher could inflate figures without much concern for being caught. The influence of teachers' interests and agency is discussed further in Chapter 8.

Determining the number of students enrolled is further complicated by the inconsistency between data sources. As outlined in Section 5.3.1, the number of enrolled students in eligible schools reported in the AWPBs is 2 million lower than reported in the NUEPA data. The MHRD figures and the quarterly figures provided by each state are also often inconsistent (CAG, 2015). For 2013-2014, these two sets of figures were different in 20 states/UTs including Rajasthan. Rajasthan had one of the largest discrepancies; 197,729 more enrolled students were reported in the MHRD's data than in the GOR's (*ibid*). Uncertainty regarding the number of enrolled students is problematic as the quantity of grain and funds are calculated per student.

5.3.3 Enrolment versus Attendance

The MDM is conditional on school attendance. In 2012-2013, the GOI found that attendance rates were 76.2% at the primary level and 77.8% at the upper primary level (NUEPA, 2014), indicating that almost one quarter of enrolled students did not attend school and thus consume the MDM. Sizable differences between enrolment and attendance were found at the sampled schools (Table 5.22).

[13] The title page for Chapter 2 shows the MDM being consumed on the day that 77 students were reported to attend. Clearly there are 22 students pictured, not 77.

Table 5.22: Attendance figures as a proportion of those enrolled from school records

Source	Location	Minimum Attendance (%)	Maximum Attendance (%)	Average Attendance (%)
Observation	Stage 1	33.9	91.4	69.3
	CS1	32.1	85.9	68.9
	CS2	74.6	90.2	76
	CS3	16.6	61.9	41.4
	CS4	28	78	50.2
School records	CS1	66.7	84.6	77.1
	CS2	31.4	66.2	56.5
	CS3	64.3	95.2	82.3
	CS4	12.4	88.4	58.6
	S25	21.2	100	72.9
	S23	37.2	91.7	77.1
	S29	42.4	96.5	79.5

The factors preventing school attendance and enrolment are typically classified as 'demand-side' and 'supply-side' barriers. Demand-side barriers relate to the home and community and include: household work or care for siblings; paid employment; the ill-health of family members; migration; the livelihood of the household and indifference to and a lack of interest in education (IN4; Research, Evaluation and Studies Unit, 2006; UNICEF 2014a; 2014b). Supply-side barriers include lack of access to a school, poor school functioning, poor infrastructure at school and the absence of good teachers (UNICEF, 2014b).

Factors affecting attendance were explored in the interviews and focus groups. At CS1 and CS2, approximately half of the participants reported that their child(ren) went to school regularly, citing a desire to be with friends, a desire to learn and the availability of food as the determining factors. Others reported that it was difficult to get their child(ren) to attend due to a lack of interest in school or 'laziness'. The lowest attendance rates were observed in CS3. Of the 10 participants interviewed, eight reported that their child(ren) did not attend school regularly, although they did go when food or good food was served. For example, the interviewee at household nine stated that her child 'only goes for food' and the interviewee at household 12 stated 'If good food and food is available daily then more children will go to school'. In CS4, nine of 10 participants stated that their child(ren) liked to attend school, as they could play with friends, whereas at home they would have to work. Five participants also mentioned the appeal of the MDM. Only one interviewee commented that their child did not like to attend regularly because the school was far away. It should be noted that the teachers at CS4 actively

encouraged students to attend every morning. Therefore some children had agency in the decision of whether to go to school. The quality of the MDM served played a role in this decision.

The MDMS is therefore not always sufficient to ensure that students go to school, due to the opportunity cost, a lack of interest in education or the meal. However, the qualitative data suggests that a regular MDM of sufficient quality can attract children to school.

5.3.4 Attendance versus Consumption

Of the children attending school on any given day, it is unlikely that all consume the MDM. From the school records obtained for Girwa (2014-2015), a higher rate of attendance than consumption was observed in 78 of 269 schools (29%) amounting to an annual difference of 252,295 meals. In the 20 sampled schools where it was possible to accurately record the number of children consuming the MDM, on average 88.5% of those attending consumed the meal. Recognising that enrolment figures may be inflated, in the student survey students were asked how often they ate the MDM. Interestingly, 88.5% reported that they always ate the meal (Table 5.23). Few students reported that they never ate the meal.

Table 5.23: Frequency of MDM consumption reported in the student surveys

Case Study	Always		Sometimes		Never	
	Freq.	%	Freq.	%	Freq.	%
CS1	61	98.4	1	1.6	0	0
CS2	56	70	22	27.5	2	2.5
CS3	15	68.2	7	31.8	0	0
CS4	114	100	0	0	0	0
Total	**236**	**88.5**	**30**	**10.8**	**2**	**2.5**

In HS1, 87.8% of parents reported that their child(ren) consumed the MDM every day (Table 5.24). The frequency varied slightly between blocks; the lowest frequency of consumption was reported in Kotra, most likely due to the greater irregularity in the provision of the MDM (Section 5.3.5).

Table 5.24: Frequency of MDM consumption according to parents, household survey one

Block	MDM Consumption (days per week)					
	0		1-5		6	
	Freq.	%	Freq.	%	Freq.	%
Girwa	4	3.9	8	7.8	91	88.3
Kotra	9	8.5	12	11.3	85	80.2
Khamnor	2	2.2	6	6.5	84	91.3
Kumbhalgarh	0	0.0	8	7.5	99	92.5
Total	**15**	**3.7**	**34**	**8.3**	**359**	**88.0**

Data from the household and student surveys indicates that in the study area approximately 85-87% of children at school consumed the MDM daily. Therefore, approximately 15% of students were self-excluding from the scheme. Self-exclusion occurred for several reasons. Some students believed that they did not need the meal because they ate before or after school. For example, a girl in grade VII at CS1 stated: 'sometimes I come from home after eating, then I don't eat [the MDM]'. Others went home for lunch. Four teachers reported that some children always went home for lunch and seven said that this occurred sometimes. Those living close to the school were more likely to go home. Thus, for some students there was a self-assessed absence of need due to the availability of food at home.

Other students did not consume the MDM because they did not want to. For example, one boy at CS2 wrote: 'I eat the food just once a week because I do not like the school food'.[14] Children also have agency in the decision as to whether to consume the MDM when at school. A small number did not eat the food due to a perceived absence of need and/or discrimination. For example, at school 24, the children at household eight who belonged to a general caste stated that they did not eat the MDM because the scheme is for SC, ST, OBC children. They felt that if they sat and ate the meal with them it would by association mean that they were also poor. They stated that 'higher' caste children at the school did not consume the meal. In this case, a stigma was attached to eating the meal, resulting in rights-holders not consuming the meal.[15] However, stigma was not commonly mentioned in this research; probably due to the homogeneity of castes in many locations. Finally, on occasion students (especially older girls) were not consuming the meal due to religious fasting.

[14] Preference is considered in greater depth in Section 7.5.
[15] Discrimination is discussed further in Section 6.5.

For those children attending a school serving the MDM, there is the option to consume the MDM. However, children may 'choose' not to. This decision can be affected by need, preference and social structures which affect how students perceive the act of eating the meal.

5.3.5 Irregularity

Students do not have the option to consume the MDM if it is not served; a form of exclusion *within* the scheme. In these situations, students do not have the capability to consume the MDM. This exclusion occurs for two primary reasons. Firstly, the MDM may not be provided due to school closure. Schools should open for approximately 230 days per year. In 2013-2014, on average, primary schools opened for 226 days, although 5.1% of primary schools opened for fewer than 200 days (NUEPA, 2016). Between April and December 2015, schools opened for the expected number of days in just 13 states/UTs.[16] The lowest number of working days was reported in Nagaland, where schools opened for just 121 of 173 days (69.9%). Schools often do not open for the specified number of working days due to teacher absences. The GOI found that teacher attendance averaged 84.3% at the primary level and 81.3% at the upper primary in 2012-2013 (NUEPA, 2014). The absence of teachers is a particular problem in single-teacher schools as it results in school closure. When schools are not open, the MDM is not provided and students do not receive their entitlements. School closure has thus been recognised as a problem for the MDMS, for example in the JRMs to Bihar (MHRD, 2013d), Madhya Pradesh (MHRD, 2013e), Meghalaya (MHRD, 2013f) and Nagaland (MHRD, 2013b).

In 2014-2015, in Rajasthan schools should have opened for 231 days (GOR, 2015a). The GOR (2015a) reported that schools opened for the correct number of days; however, the records for Girwa block for the same period show that only 113 of 240 schools (43.0%) opened for at least the correct number of days (Table 5.25).

[16] The full dataset is provided in Appendix E.6.

Table 5.25: Working days at schools in Girwa 2014-2015 (from Girwa block records)

Number of working days	Number of schools	Percentage of schools
202-210	7	2.9
211-220	19	7.9
221-230	111	46.3
231	45	18.8
232-240	57	23.8
241-244	1	0.4

A state-level official suggested that the closure of schools in Rajasthan was rare, stating: 'In our state every child is under the MDM, except a few schools occasionally' (IG4). However, observation showed that school closure was not uncommon. Of the 47 schools visited, three schools in Kotra were closed and thus were not included in the final sample. School 15 in Kotra was also closed on the day of our visit due to the absence of the only teacher, although likely due to our presence the MDM was still served. Even schools included in the sample were not always open when we visited. The third case study school, for example, which only had one teacher was closed for 10 days after the Holi vacation. Teacher absenteeism is a known problem in India and occurs due to multiple reasons, including due to the motivation of teachers, which may be determined by the working conditions and how remote the location of the school is, and the institutional context including a lack of accountability and incentives (Kremer *et al*., 2005; Narayan and Mooij, 2010; Ramachandran *et al*., 2005). These factors clearly influenced the teacher at CS3. She had to travel on foot to reach the school, which did not have a functioning toilet or running water and had been recently broken into. In the absence of effective accountability mechanisms, it is unsurprising that she sometimes did not go to work.

Secondly, schools may open but not serve the MDM. No meal was served during our visits to schools 12, 14 and 21 in Kotra and school 43 in Kumbhalgarh. In schools 12 and 21 this was because the cooks were absent. Notably, many of the students at school 12 boarded at the school and did not have the option to return home for lunch. Students were forced to miss lunch and wait for their evening meal at the hostel. In schools 14 and 43, teachers gave no reason for the lack of a MDM. At school 14 (CS3), the meal had not been served for several weeks. According to the parents, the teacher told them that the MDMS no longer existed. On our arrival at the school, the teacher called her husband who promptly brought *namkeen*. The children went through the performance of washing their hands using the nearest water source (an irrigation pump in a field) and then ate *namkeen* from a plate. The case study schools served lunch regularly because they knew we were coming. However, at CS1 the lunch was not served during the examination period. The decision not to serve the meal may be a coping strategy in the

absence of sufficient human resources (cooks or teachers) or may be the product of a lack of motivation of teaches to organise the MDMS.

Household surveys confirmed irregular MDM provision. Of the 219 participants in HS1 that expressed dissatisfaction with the scheme, 23 cited irregularity as a cause. These responses were from households in locations 16, 17, 19 21 and 22 in Kotra, 30 and 31 in Khamnor and 39, 42, and 43 in Kumbhalgarh. Reports of irregularity were therefore more common in Kumbhalgarh and particularly common in Kotra. Many of the respondents that cited food irregularity as a problem were in particularly remote locations (schools 17, 39, 42, 43). Due to the centralised nature of provision, one would not expect irregularity to be a problem Khamnor, yet irregularity was cited as a problem at two schools in the block.

The block level official in Kotra was not surprised to hear that MDM provision was often irregular. He stated that although the MDM was a successful scheme, it had not been particularly well-implemented in Kotra (IG5). He considered that this was largely due to the physical conditions in Kotra; schools were often 5km away from the road and the terrain was hilly, making it difficult for teachers to provide the MDM. He also attributed the scheme's poor implementation to the unavailability of fruit and vegetables in the block and common incidents of theft, which made storing food at schools difficult. Indeed, the aftermath of a theft was witnessed at the third case study school. The block-level official concluded that the block office 'can't do anything about it'; he considered the area to be 'backward' and such problems to be inevitable. The officer was also not surprised to hear that the third case study school had not served food after Holi, stating that this was a 'tradition' in the area. Thus, the official with responsibility for the implementation of the MDMS in the block considered successful implementation to be a lost cause. Notably, the implementation problems he cited were inevitable and unalterable, relieving him of any responsibility to improve the scheme's implementation. The reasons cited can thus be considered 'escape hatches' (Schaffer, 1984).

5.4 Discrimination

Exclusion *within* the MDMS may also occur due to discrimination, which is typically caste-based. Such discrimination may result in the outright exclusion of *dalit* children or the provision of quantitatively or qualitatively inadequate food to 'lower' castes (Thorat and Lee, 2005). Discrimination may also affect how children experience the scheme, for example *dalit* children may be forced to sit separately (*ibid*). Others may choose not to consume the meal, due to the discrimination towards 'lower' caste cooks or 'lower' caste children. Discrimination in the MDMS is not, however, ubiquitous (Drèze and Goyal, 2003). To assess whether discrimination had been experienced in the MDMS in the study area,

respondents were directly asked whether their child had experienced discrimination in the MDMS. In HS1, 320 (76.9%) answered no, 16 (3.9%) said yes and 80 (19.2%) did not know. Of the 12 that answered yes and provided further details, six said that their child received less food because they were lower caste, four said that older students gave their child less, one reported that the cook gave more to students that they preferred and another reported their child received less because they were Muslim. HS2 generated similar results; 117 people (74.5%) stated that their child had not experienced discrimination, 10 (6.4%) said that they had and 30 (19.1%) did not know. Four respondents provided further details; two stated that lower castes were given less food and two reported that the cook gave preferential treatment to certain students. I encountered discriminatory attitudes on two occasions. The respondent from household two from school 23, argued against the practice of children sitting together. The father from household one at school 26 stated that the only problem with the MDMS was the mixing of castes, arguing that lower caste children should not be allowed to serve or touch the food and that they should sit separately.

All teachers and CCHs reported that students sat together to eat the MDM and were served in the same manner. Observation confirmed this, except for at school 16 where boys were served first. Many of the children described the process of sitting down to eat in their essays, but none mentioned segregation. In HS3, 115 parents (87.1%) reported that there was no segregation in seating in the MDMS, of which 34 (29.6%) specifically mentioned that the teacher did not allow it. Seventeen parents (12.9%), mentioned that caste influenced seating; 11 reported that upper castes would not sit with their child and six said that their child would not sit with lower caste children. Responses included 'we cannot sit with lower castes because we are Brahmin' (household eight at CS1), 'lower castes are not clean' (household 21 at CS1) and 'upper caste children won't sit with our children so our children sit with their own caste' (household 22 at CS4). In the focus groups, most participants noted that children sat together and that discrimination was prohibited by teachers. In each group, however, some form of discrimination was mentioned. For example, at CS2, two participants stated that when high caste children served the food they gave less to low caste children. At CS2 and CS4, some participants mentioned that when lower caste children served the food, higher caste children did not eat the MDM.

The extent to which this study can comment on discrimination in the MDMS is limited by the homogenous caste composition of many locations (Section 3.2.4) and by my position as an outsider. I did find, however, that caste-based discrimination towards students in the MDMS in the study area was neither ubiquitous nor entirely absent. Discrimination was found to affect the quantity of food children received. One can deduce that it also affected the experience of students.

5.5 Temporal Exclusion

5.5.1 Introduction

The existence of a right to consume the MDM varies temporally. Rights-holders are not entitled to a meal when the school is closed on Sundays. In the student survey, 260 students (77.4%) reported that they ate less on Sundays. In HS2, 132 parents (94.3 %) reported that their child ate less on Sundays. More concerning, however, is that the MDM is not provided during vacations. The longest vacation is in the summer (early May until late June). The summer is a difficult time of the year in Rajasthan; it is hot, dry and there is little surplus food (IN10). When the third stage of the fieldwork was conducted in the summer of 2015, the study area had not been declared 'drought-affected' and therefore, the MDM was not served. In the following two sections, I examine what happened to food security and food consumption during the summer.

5.5.2 Food Security

A paired sampled t-test was conducted to compare HFIAS scores in HS2 and HS3 (before and during the summer). There were significant differences in the scores at CS1 and CS2. Significant differences were not found at CS3 and CS4 as food insecurity levels were already high at the time of HS2. The mean HFIAS scores were higher at all case studies in HS3 than HS2, indicating that food insecurity was higher in the summer (Table 5.2.6).

Table 5.26: Mean HFIAS scores and standard deviations

Case study	HS2		HS3		T-test results
	Mean	Standard Deviation	Mean	Standard Deviation	
CS1	7.34	6.81	10.52	6.72	t(28)=2.458, *p*=0.02
CS2	7.41	6.44	12.54	5.11	t(36)= 3.5043, *p*=0.0012
CS3	17.33	5.67	18.36	4.06	t(35)=0.9435, *p*=0.35
CS4	10.21	4.56	12.45	5.12	t(28)=1.8458, *p*=0.07
Total	**10.74**	**7.24**	**13.67**	**6**	**t(130)=4.5006, *p*=<0.001**

The number of affirmative responses in the HFIAS increased in the summer for all questions (Table 5.27). By the summer, 98.5% of the sample reported that they were unable to eat food that they preferred and ate a limited variety of food.

Table 5.27: Affirmative Responses to HFIAS in the second and third household surveys (*n*=131)

Question	HS2 (%)	HS3 (%)
Q1. Worry about food	80.1	96.3
Q2. Unable to eat preferred food	86.8	98.5
Q3. Eat a limited variety of food	87.5	98.5
Q4. Eat food really did not want to eat	83.8	97.1
Q5. Eat a smaller meal	72.8	94.9
Q6. Eat fewer meals	64.0	83.1
Q7. No food to eat	55.9	72.1
Q8. Go to sleep hungry	31.6	59.6
Q9. Did not eat for a whole day and night	24.3	40.4

The number of households experiencing severe food insecurity increased in the summer (Figure 5.8).

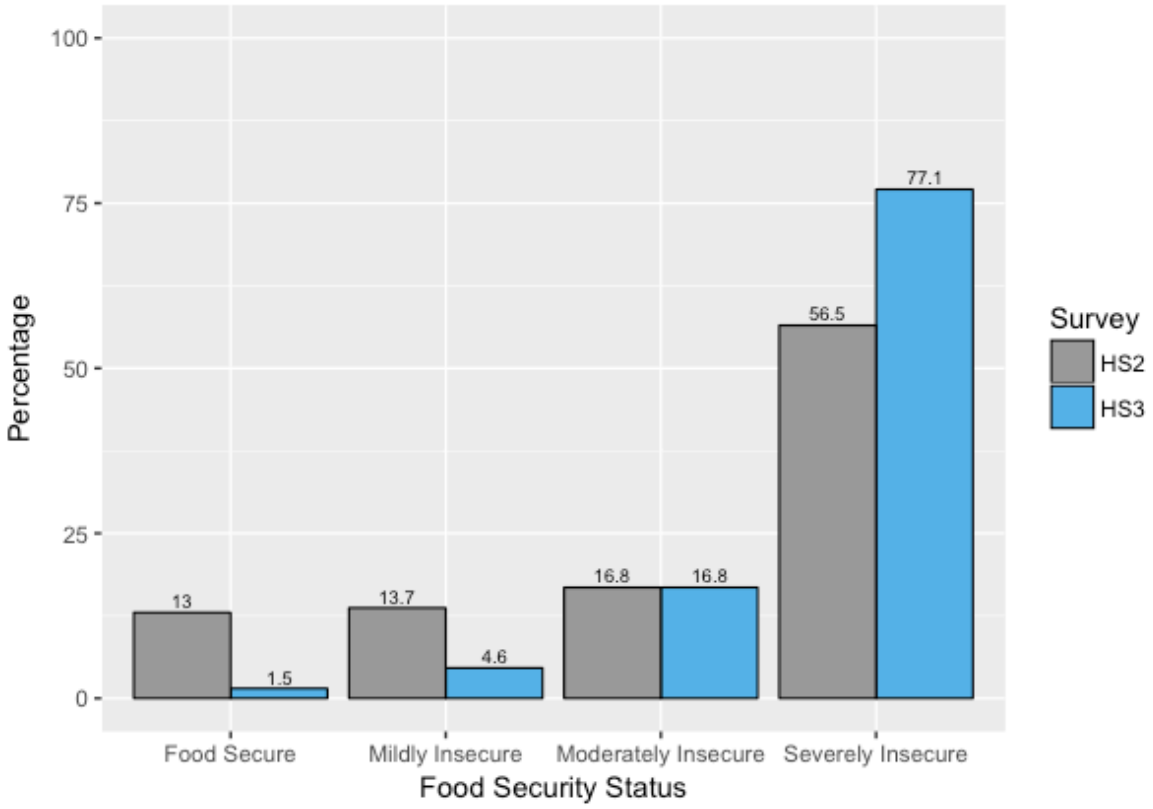


Figure 5.8: HFIAS categories in household survey two and three

Changes in the prevalence of food insecurity differed between the case studies (Table 5.28). A Kruskal-Wallis test found a significant difference between case studies, $H(1)=16.819$, $p=<0.001$. At CS1 and CS2, the number of households classified as food secure decreased in the summer and the severity of food insecurity increased. At CS3, no households were food secure at the time of HS2; however, by the

summer all households were severely food insecure. The smallest change in food security was found at CS4; the change was from mildly to moderately food insecure.

Table 5.28: Food insecurity category, percentage of households by case study

Case Study	Food Insecurity Category	HS2 (%)	HS3 (%)
CS1	Food Secure	20.7	6.9
	Mildly Food Insecure	27.6	13.8
	Moderately Food Insecure	24.1	27.6
	Severely Food Insecure	27.6	51.7
CS2	Food Secure	29.7	0.0
	Mildly Food Insecure	13.5	2.7
	Moderately Food Insecure	13.5	18.9
	Severely Food Insecure	43.2	78.4
CS3	Food Secure	0.0	0.0
	Mildly Food Insecure	5.6	0.0
	Moderately Food Insecure	13.9	0.0
	Severely Food Insecure	80.6	100.0
CS4	Food Secure	0.0	0.0
	Mildly Food Insecure	10.3	3.4
	Moderately Food Insecure	17.2	24.1
	Severely Food Insecure	72.4	72.4

Desiere *et al*. (2015) and Maes *et al*. (2009) observed that temporal changes in responses to the HFIAS were a product of response shift rather than changing food security and thus argued that the capacity of the HFIAS to examine temporal changes was limited. However, both Desiere *et al*. and Maes *et al*. found that food insecurity decreased over time; the opposite of the trend found in this research. Furthermore, the observed increased food insecurity in the summer is reflected in the results from the food consumption survey and recall.

The frequency of the consumption of all food groups decreased in the summer (Table 5.29).

Table 5.29: The frequency of food consumption in household surveys two and three

Food	Survey	Frequency in the past seven days							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Staple	HS2	0	0	0	0	0	0	0	133
	HS3	0	0	0	0	0	5	5	123
Pulses	HS2	23	31	47	23	5	2	0	2
	HS3	22	62	42	7	0	0	0	0
Veg	HS2	8	31	29	24	8	2	2	28
	HS3	47	66	19	1	0	0	0	0
Fruit	HS2	73	50	4	1	1	0	0	4
	HS3	125	8	0	0	0	0	0	0
Meat	HS2	99	29	1	2	0	0	0	2
	HS3	121	11	1	0	0	0	0	0
Milk	HS2	27	0	2	6	8	1	5	84
	HS3	54	1	10	7	7	5	10	39
Sugar	HS2	3	0	2	0	5	0	3	120
	HS3	7	3	10	14	7	3	7	82
Oil	HS2	1	1	11	10	6	1	3	100
	HS3	0	2	16	20	16	12	8	59
Condiments	HS2	1	0	1	1	1	0	2	127
	HS3	0	2	0	0	2	2	14	113

A Wilcoxon signed-rank sum test shows that FCS scores from HS2 (*Mdn*=54) are statistically significantly greater than the scores from HS3 (*Mdn*=32.5), Z=8168, *p*=<0.001. These results indicate that dietary diversity was lower in the summer. A significant difference was found for all case studies (*p*=<0.001).

Similarly to HS2, cluster analysis revealed three clusters in the food consumption of respondents in HS3 (Table 5.30). Comparing Table 5.30 and the results for HS2 (Table 5.13) shows a decrease in the cluster means across all food groups and clusters for HS3 compared to HS2. This means that all food groups were consumed less frequently in the summer. The existence of clusters in the data, however, shows that food needs still varied between households. Respondents in cluster one had the most diverse diet and respondents in cluster three had the least diverse diet.

Table 5.30: Cluster analysis of the FCS results, household survey three

Food group	Cluster Means (Frequency of consumption)		
	1	**2**	**3**
	***n*=59**	***n*=33**	***n*=42**
Staple	7	7	6.7
Pulses	1.4	1.7	0.8
Vegetable	1.2	0.5	0.5
Fruit	0.2	0	0
Meat/fish	0.2	0	0.1
Milk	6.4	0.1	1
Sugar	6.7	7	2.2
Oil	6.4	5.4	3.1
Condiments	6.9	6.8	6.6
Sum of squares	4.0	6.1	6.4

There was a significant relationship between case study and cluster, $\chi^2(6)=62.869$, $p=<0.001$. As shown in Table 5.31, participants at CS1 predominately fell into cluster one (the most diverse diet). Most of the participants at CS3 were in cluster three (the least diverse). Respondents at CS2 were largely split between clusters one and two and respondents at CS4 were split almost equally across all clusters. Dietary diversity was thus the greatest at CS1, followed by CS2 and CS4. Consumption was by far the least diverse at CS3.

Table 5.31: Clusters by location- FCS results, household survey three

Case Study	Cluster (number of households)		
	1	**2**	**3**
CS1	23	4	3
CS2	19	13	4
CS3	0	5	27
CS4	10	8	8

Food consumption recall confirms that both the quantity and diversity of the food consumed decreased in the summer (Table 5.32). Most notably, in the summer at CS2, CS3 and CS4, dinner typically consisted of *roti* and an accompaniment such as chilli or coriander paste. Snacks were also not consumed in the summer. The lunch consumed in the summer is typically smaller in quantity and lower in quality than the quantities served in the MDMS.

Table 5.32: Most commonly consumed meals from household recall

Case Study	Time	Breakfast	Lunch	Dinner	Snacks
CS1	Term	Tea	MDM- 2 *roti*,1 cup vegetables	2 *rotis,* 1 cup of vegetables	Tea
	Summer	Tea	2 *roti*, 0.5 cup of *dal*	2 *roti*, 1 cup of *dal*	Nothing
CS2	Term	Tea, 1 *roti*	MDM- 2 *roti*, 1 cup vegetables	1.5 *rotis*, 0.5 cup of vegetables	Tea
	Summer	Tea	2 *roti*, 0.5 cup *dal*	2 *roti*, accompaniment	Nothing
CS3	Term	Nothing	MDM- 1 *roti*, 1 cup of vegetables or 1 plate of *dal dhokli*	1 *roti*, chilli paste	Nothing
	Summer	Nothing	2 *roti*, accompaniment	1 *roti*, chilli paste	Nothing
CS4	Term	Tea	MDM – 2 *roti*, 2 spoons of rice, 1 cup of *dal*	2 *rotis*, 1 cup of *kadhi*	Tea
	Summer	Tea	2 *roti*, 0.5 cup of *dal*	2 *roti*, accompaniment	Nothing

Together, the results from the FCS, HFIAS and food recall confirm temporal variability in food access. The results therefore show that household food needs were the highest at a time when the MDMS was not operating. The design of the MDMS therefore does not reflect temporal variations in food needs.

5.5.3 Perceived Changes

Interviewees and focus group participants confirmed that their food consumption decreased in the summer. All interviewees stated that less food is available in the summer than at any other time of the year, due to an absence of water, a lack of grass for livestock and the unavailability of wage labour. Interviewees noted that the impact of the absence of the MDMS. For example, the respondent at household 20 at CS2 reported that they have the most food when the school is open, because they had six children who all went to school to eat one meal per day. Of the students, 245 (72.3%) said that they consumed less food in the summer and 94 (27.7%) said that they consumed the same amount. Of the parents in HS3, 132 (95.7%) said their child ate less in the summer than at school and six (4.3%) said they ate the same amount. Parents were asked whether the lack of the MDM in the summer affected their child; 120 (87.0%) said that it did, nine (6.5%) said that it sometimes did, six (4.3%) said it did

not and three (2.2%) did not know. Parents were asked to explain their answer. The key themes in their responses are detailed in Table 5.33.

Table 5.33: Explanations of the impact of the absence of the MDM

Response	**Frequency**
Food at home is worse (less varied, no rice, less *dal*)	72
Don't get enough food	60
Children miss the food	14
Negative impact on health	12
Can't afford food	7
Problems serving food at home on time	5
Food expense increases	3
Not a problem – have enough food in the summer	9

As shown in Table 5.32, participants most commonly considered that the food served at home was worse than the food served at school. For example, household one from CS3 stated that 'we can't provide *dal*, vegetables and rice as they have in school. It makes the child ambitious'. The second most common response was that the food at home was lower in quantity than the food at school. For example, the respondent from household 29 at CS2 replied that 'because the child now eats at home, there is less food available at home. In school time, they had full diet so children do not eat two meals at home…but now they do'. Parents frequently reported that their children were hungry in the summer. For example, household 16 at CS1 stated that the 'child is starving from hunger in the summer and they are begging for food'.

The absence of the MDMS in the summer was most strongly felt at CS3. Life in the village was tough. All interviewees described how, in addition to the general lack of jobs and the absence of an *anganwadi* or a functioning PDS in the village, in the summer there was also no water, food or MDMS. Two interviewees even mentioned deaths occurring during the summer. Several households mentioned that to cope in the summer they send their child to Gujarat to work. They requested that the MDM be provided during the summer as 'when the food is not available in the summer, children become hopeless'.

Overall, 135 parents (98.5%) wanted the MDMS to continue in the summer. The explanations given reflected the answers listed in Table 5.32; participants thought that the continued provision of the MDM in the summer would provide their children with more food and higher quality food, and that they would save food, money and time.

5.5.4 Summary

In Sections 5.5.2 and 5.5.3, I have shown that at the case study locations in the summer, the quantity and quality of food consumption at home decreased and food insecurity increased. The absence of the MDM has been shown to have put a strain on households' resources and to have been negatively felt by children and their parents. Presently, the design of the MDMS does not account for temporal variation in need outside of drought-affected areas. The MDMS does not provide 'secure functionings' (Wolff and de Shalit, 2007), whether functionings is interpreted as being full, well-nourished or food secure. As shown in the qualitative accounts, the instability of this functioning can have emotional as well as potential physiological impacts. Further qualitative and nutritionally-focussed research is needed to explore these impacts.

5.6 Exclusion *from* the MDMS

5.6.1 Introduction

The targeting procedure in the MDMS leads to the exclusion of three groups of children: those in ineligible private schools, those above grade VIII and those not in school. In the following three sections, I examine the extent of exclusion and potential consequences.

5.6.2 Private schools

The enrolment of children in MDM eligible schools has decreased since 2010 due to the increase in the number of children attending private schools (Table 5.34). In 2015-2016, 59 million children attended unaided private schools and were therefore excluded from the MDMS (see Table 5.1).

Table 5.34: Change in school enrolment patterns in India
(data from the MHRD in CAG, 2015: 17-18).

Year	Enrolment at MDM-eligible schools (millions)	Enrolment at private schools (millions)
2009-2010	146.9	40.2
2010-2011	147.7	42.4
2011-2012	145.9	48.2
2012-2013	142.1	53.2
2013-2014	138.7	55.3

The decline in enrolment in MDM-eligible schools is also observed in Rajasthan and the study districts (Table 5.35). Between 2009-2016, the number of children attending MDM-eligible schools declined by 16.1% in Rajasthan, 12.0% in Rajsamand district and 10.5% in Udaipur district.

Table 5.35. Enrolment in MDM-eligible schools (data from GOR 2011-2016)

Year	Rajasthan	Rajsamand	Udaipur
2009-2010	7,494,000	172,000	406,000
2010-2011	7,341,000	168,000	385,000
2011-2012	7,321,000	165,000	401,000
2012-2013	6,969,000	156,000	392,000
2013-2014	6,771,000	146,000	362,000
2014-2015	6,250,000	146,000	362,000
2015-2016	6,284,000	151,000	363,000

The rise of low-cost private schools means that a family does not have to be wealthy to send their child to private school (Srivastava, 2013; Tooley and Dixon, 2003). A family sending their child(ren) to private school is not necessarily food secure. Consequently, the child(ren) may still need to consume the MDM. For example, Tooley and Dixon (2007) found in Delhi that some children were enrolled in both types of school; attending private school but visiting the government school for the MDM. This was not observed during this research. Instead, I encountered households that were sending children to different types of schools. In 15 of 427 households in HS1 and 10 of the 133 households in HS2, there was at least one child attending a private school and at least one attending a government school. In the majority of cases, a young male child went to a private school and the female child or an older male child went to a government school.

The HFIAS results from HS1 show that households within which a child attended private school were not the most food insecure in the sample. Three of the 15 households were food secure; however, the remaining households had low scores meaning that they had worried about food and had taken actions to address having limited food once or twice in the previous month. The absence of the MDMS was evidently felt by parents, as some expressed their wish to have a MDMS in private schools. The absence of a MDM may therefore be detrimental to food security. Moreover, the absence of the MDM in private schools highlights that the functioning to be well-nourished or food secure may not be the priority for parents. Instead, the desire for their children to be well-educated may take priority.

5.6.3 Students Above Grade VIII

On Independence Day in 2003, Prime Minister Vajpayee announced: "The Mid-Day Meal Scheme for children up to class five is going on in some States...Later, this will be extended to students up to class ten". The announcement was subsequently referenced in the Supreme Court Order of April 2004 (Appendix B.2.4). However, the GOI has only extended the scheme to grade VIII. The state governments of Karnataka, Tamil Nadu and Telangana include older students from their own resources; however, this is not the norm. In Rajasthan, students in grades IX and X are excluded from the MDMS and across India, students in grades XI and XII are excluded. In 2015-2016 there were more than 33.8 million students in grades IX-XII in MDM-eligible schools in India, more than 1.8 million in Rajasthan, 42,712 in Rajsamand and 83,481 in Udaipur (NUPEA, 2016).

When a child enters grade IX they are no longer eligible to receive the MDM. In schools with grades I-X, which have become more common in Rajasthan recently (Section 5.6.4), older children must observe younger children consuming the meal. As described in the 2014 report by the JRM to Punjab, but equally as applicable to Rajasthan, 'when they [students] join 9th class suddenly they find that they are no more entitled to the MDM. The habit formation... is done away with' (MHRD, 2014: 5). The JRM noted that this had a marked effect on the experiences of older students, who often stared at the meal.

Of course, the need to consume lunch does not disappear when a student reaches grade IX. Therefore, students must either bring food from home or purchase lunch outside of school, both of which draw on a household's resources. If these resources are unavailable, then the child does not eat. The second case study school provides the best insight into what happens to older students when no longer eligible for the MDM. The school was the only secondary school in the surrounding area and many children had to walk several kilometres across hilly terrain to get to the school. These children had to leave home early and were usually hungry by lunchtime. For this reason, the school management offered the MDM to all students. As one student in grade X wrote: 'In school, from class one to class ten everyone is given

food, so for us there is a benefit'. In this context, teachers exercise discretion and consequently make policy.

Despite being permitted to consume the MDM, not all students did so. Of the 54 children in grades IX and X that completed the student survey, 22 (40.7%) reported that they always ate the meal, 27 (50%) reported that they ate the meal sometimes and five (9.3%) reported that they did not eat the MDM. The essays confirmed that the frequency of consumption varied. For example, one student in grade X stated 'I eat the food daily' whereas another student in the same grade stated 'I eat in the morning at home before coming to school, therefore I do not eat food at school. Only *dal* rice is good, therefore I just eat *dal* and rice'. The influence of preference on consumption is discussed further in Section 6.5. Across the three days of student recall, on average 15 children in grades IX and X reported that they ate the MDM and seven reported that they ate lunch once they returned home, typically two *rotis* and half or one cup of vegetables. Two students reported that they consumed *namkeen* and biscuits and three reported that they ate nothing. In the absence of the MDM and food at home, some children clearly turned to cheap snack items and some ate nothing.

The exclusion of older students is potentially problematic for four reasons. Firstly, studies have recognised the sizable gap between dietary intake and RDA for adolescents (see Section 3.2.2), A deficit in intake is particularly problematic in the context of rapid growth in adolescence (see Appendix A.2.3). The implication of excluding adolescents from the MDMS has not gone unnoticed. The 2013 JRM to Delhi concluded that the MDMS should be extended to include grades IX and X as 'adolescence is the second opportunity to achieve development milestones' (MHRD, 2013: 74).

Secondly, as observed at CS2, teachers often allow older ineligible students to consume the MDM. An expert interviewee confirmed that this occurred elsewhere in Rajasthan (IN4) and has also been found elsewhere in India (MHRD, 2013b). As grain and funding are allocated per student, there is no formal 'room for manoeuvre' to include additional beneficiaries. Schools 'manage somehow' to include these students (IN4). As the demand for the MDM is higher than the supply of financial resources, teachers must 'do more with the same amount' (Hupe and Buffat, 2014) by reducing the overall amount given to each student or by inflating the figures on the number of eligible students consuming the meal. The former denies rights-holders their full entitlements whereas the latter is detrimental to transparency.

Thirdly, at the end of grade VIII, rights-holders lose their right to consume the MDM but must observe others consuming the meal. This research, along with the JRM to Punjab, shows that there may still be a need for and desire to eat the MDM in Grade IX and above. Thus, both nutrition- and experience-focussed research is needed to explore the consequences of this exclusion from the MDMS.

Finally, in Section 5.6.4, I will show that enrolment decreases considerably when children reach 14 years of age. Of course, there are multiple reasons for the decline in enrolment, including the limited availability of secondary schools in rural areas. Whether the absence of the MDMS is also a determining factor merits further study.

5.6.4 Out-of-school children

The MDMS is only for those in school; out-of-school students are therefore excluded. Determining the size of this excluded group is difficult due to unreliable data, methodological limitations and inconsistent definitions of what constitutes an out-of-school child (Bhatty, 2015). Consequently, figures on the number of out-of-school children vary greatly, ranging from six million (Social and Rural Research Institute, 2014) to 38 million (GOI, 2011a).[17]

The distribution of out-of-school children varies geographically. Certain states, such as Uttar Pradesh, Bihar and Rajasthan have especially high rates (*ibid*). The 2011 Census found that 3.1 million children aged 6-14 were out-of-school in Rajasthan. As shown in Table 5.36, in Rajasthan a higher proportion of females are out-of-school than males. Notably, in Udaipur district more than a third of girls aged 6-14 are out-of-school. SCs and STs comprise a higher proportion of out-of-school children than in the age group at the state and district levels, except for STs in Udaipur. The proportion of out-of-school children is particularly high in Udaipur district.

[17] The different estimates are reviewed in Appendix E.7.

Table 5.36: Out-of-school children aged 6-14 in Rajasthan and the study districts- calculated using data from the 2011 Census (GOI, 2011a)

		Rajasthan	Rajsamand	Udaipur
Number of 6-14 year olds		14,716,568	240,333	644,312
Number out-of-school		3,111,398	43,497	190,488
Percentage out-of-school (6-14 years)		21.1	18.1	29.6
Population (6-14 year olds)	Males (%)	52.8	52.1	52.2
	Females (%)	47.2	47.9	47.8
	SC (%)	19.0	13.2	5.8
	ST (%)	14.9	15.7	58.4
Out-of-school children	% of all males	17.4	14.5	25.1
	% of all females	25.3	22.0	34.5
	% that are male	43.6	41.7	44.3
	% that are SC	21.1	18.1	29.6
	% of out-of-school SC children that are male	44.0	44.6	47.1
	% out-of-school children that are ST	29.9	34.3	39.9
	% out-of-school ST children that are male	43.2	39.1	43.8

Although the Social and Rural Research Institute (2014) found that far fewer children were out-of-school than the GOI (2011a) did, their results are useful as additional variables are included. As shown in Table 5.37, the data shows that out-of-school children are most likely to be from rural areas, to be girls, SCs and STs and Muslims and to be 11-13 years. Notably, more than one quarter of disabled children are out-of-school.

Table 5.37: Out-of-school 6-13 year olds (Social and Rural Research Institute, 2014).

		Percentage out-of-school
Location	Rural	3.1
	Urban	2.5
Gender	Males	2.8
	Females	3.2
Caste	SC	3.2
	ST	4.2
	OBC	3.1
	Other	1.9
Religion	Hindu	2.7
	Muslim	4.4
	Christian	1.5
	Other	1.3
Age	6-10 years	2.8
	11-13 years	3.3
Disabled		28.1

Figures 5.9 and 5.10 show the proportion of out-of-school children in Rajsamand and Udaipur that belong to STs. As shown, the youngest and oldest children are most likely to be out of school. Moreover, a far higher proportion of girls than boys are out-of-school.

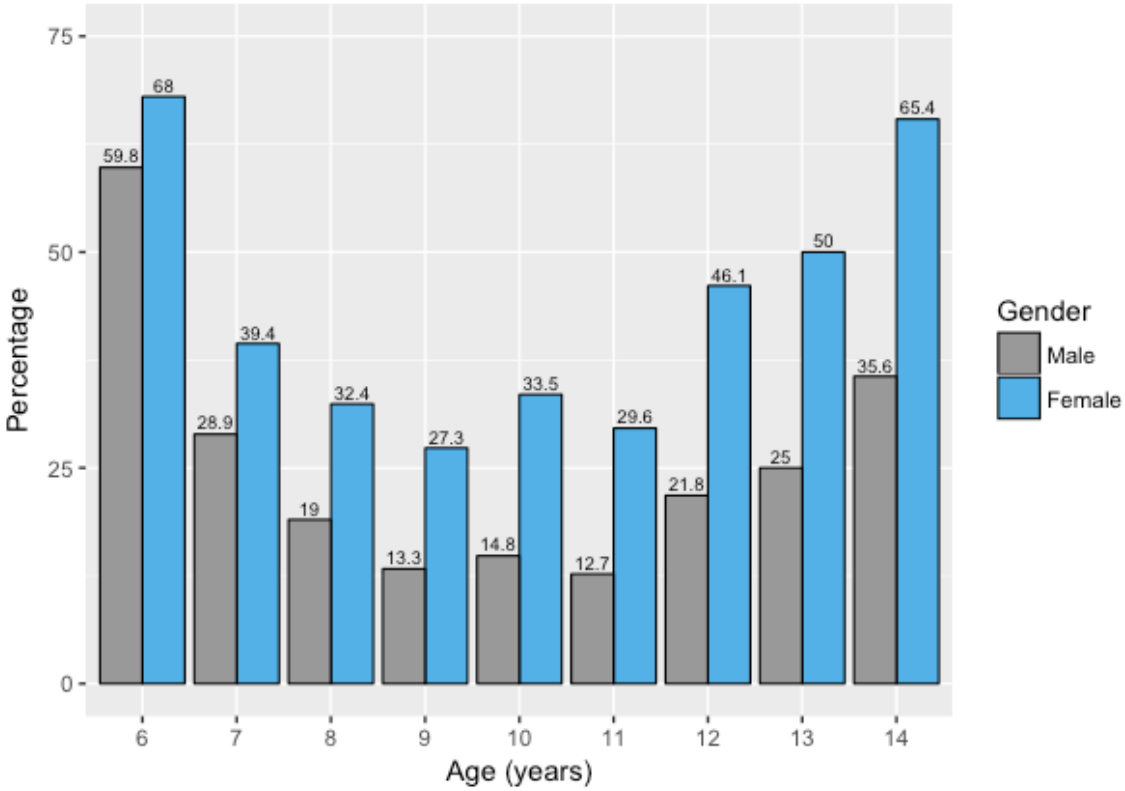


Figure 5.9: Out-of-school ST children in Rajsamand district (GOI, 2011a)

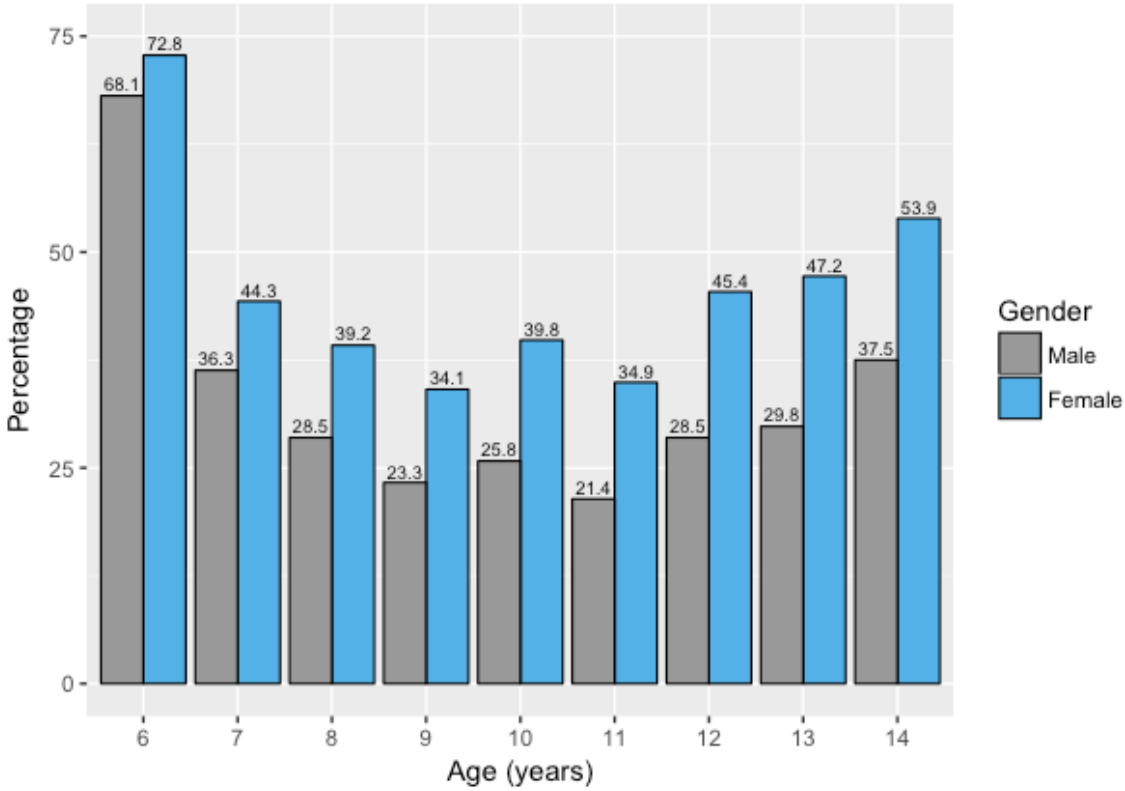


Figure 5.10: Out-of-school ST children in Udaipur district (GOI, 2011a)

The results of two surveys conducted by Udaipur-based NGOs provide insight into the number of out-of-school children at the sub-block level. *Seva Mandir* found that 68% of children in Kotra were out-of-school (IN1) and *Rajasthan Bal Kalyan Samiti* (2010) found that in Kotra and neighbouring Jhadol, 14% of boys and 26% of girls had never been to school. These studies indicate that in the study area a considerable number of children are out-of-school.

The number of out-of-school children in Rajasthan may also have increased recently. Beginning in 2014, the GOR merged schools that had low enrolment rates with larger schools. The PUCL found that in Jaipur district, 10% of the students from merged schools had dropped out (Dhar, 2014). I encountered this trend during the research. On arrival at a sampled school we found it had closed and merged with the local secondary school, which became the sixteenth sampled school. Many parents in the village reported that their child no longer went to school as the secondary school was too far away and the journey was unsafe, particularly for girls.

This research did not include out-of-school children (Section 3.3.7). Nevertheless, out-of-school children were encountered. Of the 335 children of school-going age in the sampled households in HS2, 218 (65.1%) went to the case study school, 72 (21.5%) went to other schools and 45 (13.4%) did not go to school. In such households, food insecurity was particularly high. Of the households where at least one child was not attending school, one was food secure, four were moderately food insecure and 17 were severely food insecure.

Thirty households specified the reason why their child did not attend school; 20 stated that it was due to work including household chores, grazing animals or paid employment and seven stated it was because their child had decided that they did not want to go to school. Interviewees and focus group participants cited work, either paid employment or at home, as a key reason for non-enrolment or irregular attendance. Girls in particular were expected to work at home. For example, the mother from household four at CS2 had stopped her daughter from going to school after grade VII as she was needed to help with the housework. The father from household 37 said that his son had not been to school for several months as, following the death of his grandfather, the child was needed to look after the family's cattle. In CS1, the only case study in an urban location, the work performed by children instead of going to school also included begging. Thus, the capability of children to attend school and therefore consume the meal can be determined by several factors, including household income and social norms. Parents evidently influence these capabilities of children; however, some children may have agency in the decision as to whether to attend.

Although school enrolment in India has increased significantly in recent decades, partly due to the MDMS, a considerable number of children remain outside of education. Based on research on the school lunch programme in Tamil Nadu in 1983-84, Harris (1991: 19) wrote: 'the conflation of a school feeding programme for poor children with an eligibility criterion of being a registered school attender acts as a filter, straining out those compelled by poverty to learn through labour and not through school, especially girls'. More than three decades later, the observation still holds. In Chapter 3 and Appendix A, I show that malnutrition is more prevalent among SCs, STs and Muslims, children living in rural areas and, depending on the indicator of malnutrition, sometimes girls. In this section, I have shown that these groups are also the most likely to be out-of-school. The MDMS therefore continues to be 'inept at including the most severely nourished who do not attend school' (*ibid*: 12). The targeting procedure in the MDMS does not reflect the emphasis on the most vulnerable and disadvantage evident in RBAs and the NFSA. Further research, particularly with a nutritional focus is required to accurately determine the consequences of this exclusion.

5.7 Unintended Inclusion

5.7.1 Younger Siblings

Studies of SFPs elsewhere have found that the provision of food at school can also benefit the siblings of recipients (Alderman and Bundy, 2012; Kazianga *et al.,* 2009). In theory, the MDMS should not benefit siblings as the scheme is intended to wholly supplement consumption at home.[18] Moreover, by virtue of being a hot-cooked meal, the MDM is difficult to share. Media reports indicate, however, that additional items provided in the MDMS may sometimes be shared. For example, in Uttar Pradesh in May 2016, an *anganwadi* worker and two young children died and dozens fell ill reportedly after consuming milk sachets from the MDMS supplied by Akshaya Patra. Students had taken the sachets home and shared them with their younger siblings (Jaiswal, 2016). It is unknown, however, how commonly food from the MDMS is shared. Certainly, I did not observe this. I did, however, observe a further means through which younger siblings benefit from the MDMS; consumption of the MDM at school. As the teacher from school four explained, younger children go to school with their older sibling because the parents work and there is no one at home to look after the young child. Children, especially girls, often must take on the childcare responsibilities. To get older children to enrol, teachers must allow the young children to also attend and consequently, to consume the MDM. This trend was also observed in Udaipur district by Blue (2005) and in Jaipur district by Garg and Mandal (2013); although neither examined the extent of occurrence. Once again, by altering the eligibility criteria, teachers exercise their discretion and thus can be considered to make policy.

[18] This is examined in Section 6.2.4.

Teachers at 28 schools reported that there were always some younger children accompanying their older sibling to school. Another two teachers reported that this occurred sometimes. I observed the presence of younger children in 25 schools. The number of additional children in attendance ranged from one to 10, although most commonly there were two or three additional children at each school.[19] At the case study schools, additional children were observed attending on all 49 days of observation. The number of additional children ranged from two to nine, although most commonly there were three additional siblings in each case study school.

Young children either shared their sibling's meal or received their own portion (Figure 5.11). Younger siblings are not officially enrolled as students and therefore schools do not receive any funding for these children. When the siblings share a MDM, the rights-holder does not receive their full entitlement. When the unenrolled child receives their own portion, it can be assumed that either the average portion size is slightly reduced to accommodate the extra beneficiaries or that figures are inflated to provide additional grain and funds (IA3). Bringing their siblings to schools enables older children to attend school and realise their right to the MDM as well as education. Yet, the necessity to accommodate the younger sibling may prevent the enrolled child from realising their full entitlements.

[19] However, counting the number of additional children by observation was difficult. Although typically easy to identify due to their smaller size, oversized uniform and by the fact that they were usually covered in *dal* by the end of lunch, some children closer to school-going age were more difficult to identify. Therefore, although 65 additional children were observed during the first stage of research, it is likely that this number was higher.

Figure 5.11: Younger siblings consuming the MDM. Top and bottom left- school 29. Bottom right- school 37

The need for non-rights-holders to consume the meal indicates how one food security scheme, the MDMS, may be important in the absence of another, the ICDS. The limited coverage of the ICDS and the irregular opening of *anganwadi* centres have been widely noted (e.g. Saxena and Srivastava, 2009; Sinha, 2006; Swain and Kumaran, 2012). Indeed, in this research *anganwadi* centres were found to not exist or to not be functioning in seven locations (the catchment areas for schools six, nine, 14, 25, 30, 31 and 43). The absence of a functioning *anganwadi* means that children below the age of six are denied the two meals per day that they are entitled to as per the NFSA. Attending school can be used to address the consequent void in child care and food. For example, the interviewee at household 36 in CS3 stated that, as there is no *anganwadi*, when there is no food available at home she sends all of her children to school. Access to the MDM in the absence of a functioning or well-functioning ICDS is positive;

children are receiving some food instead of none. However, under the ICDS, a child should receive 500 kcal and between 12-15g of protein whereas the MDMS provides 450 kcal and 12g of protein. It is unlikely that the young sibling would consume a full portion of the MDM, meaning that they are unlikely to receive food of the nutritional quantities that they are entitled to.

The consumption of the MDM by young children means that the provision of the food extends beyond those with a right to the MDM, to younger children with a need to consume the meal. These siblings are rights-holders within the ICDS programme, but, due to circumstance, attend school instead. By encouraging female school attendance, the MDMS can have a transformative effect. However, education exists alongside social norms, as gendered norms relating to child care are played out in the school environment. In consequence, teachers must exercise their discretion and again adopt coping mechanisms to enable them to 'do more with less'.

5.7.2 Additional Adults

In four schools (four, six, seven and 31), I observed teachers and other members of staff consuming full portions of the MDM. The adults consumed the MDM at the same time as the students and therefore their consumption cannot be considered a means of checking food safety. Instead, teachers consumed the meal due to a desire or perceived need to consume a free meal. The meal is also consumed by cooks and, in some cases, their young children who accompany them to work. Cooks may also take cooked food home with them. A cook at CS2 explained that taking extra cooked food from school is a coping mechanism at times when there is not enough food at home. The larger context for consuming the meal is that cooks are often needy and are paid a small amount (see Section 7.4.4). As a representative from the union for MDM workers stated, the cooks and their children eat the food as 'It is all they get. Otherwise there is no reason to work' (IN7). CCHs also work throughout lunchtime, rendering it inconvenient to go home and cook again.

On the one hand, adults consuming the MDM may ensure that the quality of the meal is acceptable. Certainly, teachers were not consuming the meal in schools serving poor quality food. However, the consumption by adults is likely to decrease the amount of food that is available. This was observed in school 31; children received a small portion whilst the three teachers had large servings and bemoaned the weight they had put on because of the MDMS. The food at this school came from a centralised kitchen and thus the quantity would have been calculated as per the reported attendance. Assuming that the reported attendance was accurate, teachers' consumption of the MDM would render the food for the children quantitatively insufficient.

5.8 Conclusion

In Section 5.2, I showed that targeting by school-type results in the inclusion of traditionally disadvantaged groups, particularly SCs and STs. Rights-holders in the MDMS in the study area were shown to have a need for the scheme. However, I have shown variation in need among rights-holders. In the design of the MDMS, dietary needs are considered to vary between lower and upper primary students only. However, I have shown that food security and dietary diversity may vary considerably between children, and over space and time. Needs in the MDMS are therefore simplified and homogenised. Furthermore, I have shown that the assumption that the MDMS is one of three meals consumed per day is largely inaccurate in the study area. In this case, the interpretation of need and the resulting perceived role of the MDMS fails to reflect the reality of need.

In Section 5.3, I have shown that having a right does not guarantee that it is realised. Eligible children may not attend school due to the multiple barriers to education or may self-exclude themselves from the scheme due to preference or a perceived absence of need. Children may also be prevented from claiming their right due to irregularity in the provision of the MDMS. In Section 5.4, I showed that discrimination can also affect whether students receive their full entitlement, as well as affecting how rights-holders experience the MDMS. Although the contexts are extremely different, it is clear that much like in the US school lunch system examined by Poppendieck (2010), the opportunity and choice to consume the MDM depends on multiple factors, including the meal provided, preference, stigma and socio-economic context. Inclusion therefore requires more than the establishment of 'transparent, non-discriminatory eligibility criteria' (FAO, 2004: Point 13.3). Rights-holders must also have the capability to realise their right. This capability is discussed further in Chapter 9.

In Section 5.6, I showed that the eligibility criteria in the MDMS excludes children at private schools, children above grade VIII and out-of-school children. In the latter group are some of the most disadvantaged children and thus their exclusion is at odds with the emphasis that the NFSA places on assisting disadvantaged groups. Overall, the eligibility criteria for the MDM does not ensure 'no one who is in need is excluded' (FAO, 2004: Point 13.3). Writing about a study of feeding centres in Tamil Nadu by Nagaraj (1983), Harriss wrote: 'the scheme reaches poor children, but not all poor children, probably not the poorest, and not only poor children' (1991: 17). Although the research reported here was conducted in a different state, more than 30 years later and on what is now a national MDMS, the same conclusion can be reached. The NFSA takes a life-cycle approach, within which the MDMS is the only scheme targeted at children above the age of six. The NFSA also recognises the needs of vulnerable and disadvantaged groups. However, the MDMS is not designed to enable all children to

consume the meal or to ensure that the most disadvantaged are included. This tension between targeting and the right to food is discussed further in Chapter 9.

I have shown, however, that the absence of a right does not always prevent consumption of the MDMS. In Section 5.6.3, I showed that older students may be allowed to consume the meal. In Section 5.7, I showed that teachers, cooks and the siblings of rights-holders may consume the meal. There is therefore an informal room for manoeuvre in the MDMS; some teachers alter who is eligible to consume the MDM. Consequently, teachers can be considered to make policy by altering eligibility criteria.

There are two further points that arise from the results presented in this chapter. First, it is evident that the right to food in the context of the MDMS is clearly entwined with both the right to education and the right to not engage in labour. Tackling the persistent supply and demand-side barriers to education is necessary not only for education but also for food security. Second, a recurring theme throughout this chapter has been uncertainty within the MDMS. I have shown that the number of students enrolled, attending and consuming the meal and the number of additional actors consuming the meal is unknown. Therefore, the exact number of rights-holders and those realising their right is unknown.

Chapter 6

Entitlements: The Food in the MDMS

Chapter 6

Entitlements: The Food in the Midday Meal Scheme

6.1 Introduction

As discussed in Chapter 4, rights-holders are entitled to a MDM that adheres to the GOI's norms and the GOR's menu. In this chapter, I consider whether these entitlements are fulfilled. The realisation of the right to food, however, is about more than a 'minimum package of calories, proteins and other specific nutrients' (CESCR, 1999: point 6). Food must also be qualitatively adequate and in line with preference and culture (see Section 2.3.3). Therefore, I also examine whether the MDM served in the study area fulfils the additional requirements for the realisation of the right to food and food security.

In Section 6.2, I examine the quantity of the food served in the MDMS. I first consider the extent to which the GOR's menu is adhered to, before examining the quantity of food and whether the quantity is considered sufficient by rights-holders and their representatives (their parents). In Section 6.3, I examine the quality of the food served, again as perceived by rights-holders and their representatives. In Section 6.4, I consider the extent to which the food served is safe. To do this, I examine whether the MDM has caused illness in the study area and whether the safety procedures outlined in Section 4.4.5 are adhered to in practice. In Section 6.5, I explore which food students preferred and the impact of preference on MDM consumption. Finally, in Section 6.6, I consider whether the food served in the scheme is culturally appropriate.

6.2 Quantity

6.2.1 The Menu

The MDM menu is fixed, to the extent that it should be painted on the wall of every school (see Figure 8.3). I assessed the extent to which schools followed the menu using both observation and school records. The complete dataset is provided in Appendix F.1; here, I provide a brief overview. In the decentralised model, the correct meal was served on the correct day on only 23 days (32.9%). *Roti* and vegetables and particularly rice, *dal* and vegetables and *roti* and *dal* were served less frequently than expected, whereas *khichdi* was served more frequently than it should have been. Food not on the menu was served on 20 occasions. The records from CS1 and CS2[1] show that food was served according to the menu on five of 21 days (23.8%) at CS1 and 34 of 54 days (63.0%) at CS2. The greater adherence at CS2 is due, in part to inaccurate record-keeping, indicated by cross-referencing observation and the school records. Monitoring reports from Girwa and Kumbhalgarh show that the correct food was served on 25 of 36 occasions (69.4%). Meals not on the menu were served on eight days of observation (22.2%).

In all cases, the most common meal served that was not on the menu was *dal dhokli*; sheets or balls of dough cooked in *dal*. The tendency to serve *dal dhokli* was confirmed by teachers and cooks (schools one, 9, 10 16, 18 and 19) and parents (schools 14, 15 and 19). Notably, dishes such as *khichdi* and *dal dhokli* are easy to prepare as they are cooked in one pot and therefore require far less work than dishes such as *roti* and *dal*. This can be interpreted as a coping strategy, used by cooks facing a workload that either is or is perceived to be too great given the human resources and time available. Overall, observation and data from the records show that at schools with decentralised kitchens, deviation from the menu was common.

At the schools under the centralised delivery model, the correct food was observed being served on four of the 31 days (12.9%). In the records, the correct food was served on 163 of 817 days (20.0%). Low adherence to the GOR's menu is explained by the NGO using their own menu (Table 6.1). Compared to the GOR's menu, the NGO menu features rice more regularly and in varied forms and contains *rajsambhar* (a mixture of lentils and vegetables in liquid) and *kadhi* (chickpea flour and buttermilk). Vegetables and *dal* are served as a main dish more frequently on the GOR's menu than on the NGO's menu.

[1] The teacher at CS3 was unwilling to share records.

Table 6.1: The GOR's menu for centralised kitchens and Akshaya Patra's menu

Day	**State government menu for centralised kitchens**	**Menu followed by the centralised kitchen**
Monday	*Roti*, vegetables, plain rice	*Roti*, mix *dal*, plain rice
Tuesday	*Roti*, *dal*, sweet rice	*Roti*, potato *bhaji*, cumin rice
Wednesday	*Roti*, *dal* or *dal bati*	*Roti*, *khichdi*, *kadhi* and amla
Thursday	*Roti*, vegetables and plain rice	*Roti*, mix vegetables and *pulao*
Friday	Savoury *khichdi* (rice, *dal* and vegetables)	*Roti, rajsambhar* and plain rice
Saturday	*Roti* and vegetables	*Roti*, vegetable *dal* and sweet rice.
Additional Items	One day local taste. One two days something extra should be provided. On one of these days, fruit is mandatory.	No variation according to local preference. No fruit.

The NGO typically adhered to their own menu. From observation, the menu was adhered to on 29 of 31 days (93.5%). Based on the records, the correct food was served on 236 of 406 days (58.3%) in CS4, 169 of 219 days (77.2%) in school 25 and 89 of 188 days (47.3%) in school 29. The apparent deviation from the menu can, in part, be explained by inadequate record keeping, indicated by discrepancies between the records. However, agreement between the records shows that some deviation from the menu occurred. Records for all three schools show that between 5 and 22 of January 2015, *khichdi* was served more regularly than usual. Between 23 January and 23 February 2015 (25 days), *roti* and *dal* were served 15 times, *roti* and vegetables were served seven times and *roti* and *kadhi* were served three times. Rice was not provided during the period and vegetables were rarely given. Even when NGOs create their own menu, adherence to that menu is not guaranteed.

Overall, observation and the school records show that frequently the MDMS in the study area was not provided as per the GOR's menu. This has implications for the provision of entitlements. The tendency to serve some dishes more often than others is likely to affect the overall provision of pulses and vegetables. Moreover, the deviation introduces uncertainty. If the menu is not followed, then rights-holders and their representatives do not know what they are entitled to and officials monitoring the scheme cannot accurately determine whether the state menu is being followed and norms are met.

6.2.2 Observed, Reported and Measured Quantities

Figure 6.1 illustrates the variation in the quantity of the MDM served. Notably, the quantity of food was greater at the two schools under the centralised model than at the four schools under the decentralised model.

Figure 6.1: Variation in quantity of the MDM across schools. Top left: *namkeen* for lunch at school 15 (CS3). Top right: watery *dal* and *roti* at school 14. Middle left: *dal dhokli* at school 33. Middle right: *dal dhokli* at CS1. Bottom left: *dal* and rice at CS2. Bottom right: *dal* and rice at school 29 (centralised).

In the grain records obtained for schools in Girwa, in 2014-2015, 192 of 267 schools (71.9%) reported that exactly the correct quantity of grain had been used. Of the 75 schools reporting incorrect figures, 24 reported lower grain use than expected and the remaining 51 reported higher grain use. The differences ranged from -773kg to 582kg, although in 31 cases the reported quantity was with within 15kg of the expected quantity. Therefore, even if the records are considered to be completely accurate, 9% of schools admitted serving an inadequate quantity of grain.

The records also detail the amount of wheat and rice used. According to the state level menu, *roti* should be served four times per week and rice twice. One would therefore expect the quantity of rice to be approximately one third of the total amount of grain used. Slight deviation would be expected according to the requirement to provide the food in line with local taste. The amount of rice was between 30-36% of the total amount of grain in 172 of 257 schools (66.9%). For the remaining, rice as a proportion of total grain use ranged from 6-41%, with an average of 26.4%. The records therefore indicate that a number of schools were not serving rice as frequently as they should have been; a trend also observed at the sampled schools (see Appendix F.1).

Teachers are not required to keep records on the quantity of the other ingredients used. Therefore, adherence to the national guidelines cannot be assessed using records. Consequently, in schools with decentralised kitchens, we asked teachers and cooks the quantity of ingredients used and the number of children attending. From this, I calculated the raw quantity of food per student. The results are presented in Table 6.2. At CS1, the reported grain use was slightly lower than it should have been, *dal* use was higher and vegetable use was considerably lower. At CS2, reported grain use was higher than expected; however, 20kg of flour was reported regardless of attendance, indicating that either the same amount of grain was always used or 20kg was reported regardless of use. The *dal* and vegetable use were both lower than expected, corroborated by observation. At CS3, the reported quantity of each ingredient was far higher than expected and far higher than the quantity observed, indicating that the reported values were inaccurate.

Table 6.2: The quantity of ingredients as reported and expected

Item	Case Study	Expected Quantity (kg)	Reported Quantity (kg)	Reported-expected (kg)
Grain	CS1	80.95	72.5	-8.45
	CS2	162.1	194	31.9
	CS3	22.6	46.5	23.9
Dal	CS1	7.45	9.05	1.6
	CS2	9.16	6.0	-3.16
	CS3	2.38	8.5	6.12
Vegetables (excluding potatoes)	CS1	14.1	9.4	-4.7
	CS2	43.525	12.3	-31.255
	CS3	2.35	4.65	2.3

Of course, asking teachers and cooks the quantity of the ingredients used relies on their honesty and knowledge. Therefore, I also weighed the meal three times during each lunch time and took the average weight (Table 6.3). The raw weight of the *roti* should be 100g for lower primary and 150g for upper primary students. The addition of water to the flour to make *roti* will make the overall product heavier than 100g. In CS1 and CS2, the *roti* are on average below the specified weight. In CS3 they are heavier, although still inadequate. In CS4, *roti* were served alongside rice. The conversion of cooked weight to raw weight is standardised for rice; 100g of raw rice weighs between 340g-370g when cooked (MHRD, 2013b: 61). The quantity of rice served at CS1 and CS3 was therefore inadequate. The combined weight of *roti* and rice at CS4 was also inadequate. The quantity of *khichdi* was also inadequate at CS1, CS2 and CS3. For dishes with a higher water content such as *dal* and vegetables, converting cooked weight into raw weight is difficult. One can, however, make an educated assessment of whether the quantity was adequate based on weight and observation. For example, if a weight of 100g is recorded and the vegetable dish is observed to be mainly water, one can infer that the dish would not contain the 75g of vegetables required for upper primary students. The quantity of vegetables was therefore inadequate at all case studies and the quantity of *dal* was inadequate at CS3. Rice and *kadhi* were likely to be adequate at CS2 for lower primary students only.

Overall, across the 54 days of measurement, the correct amount of grain was observed once at CS1. The correct quantity of pulses was served on three of three days at CS1 and not at all at CS2 and CS4. The correct quantity of vegetables, excluding potato, was not observed.

Table 6.3: Average weight of cooked portion

Food (grams)	**CS1**	**CS2**	**CS3**	**CS4**
Roti	99.8	117.8	78.3	79.6
Rice	215	NA	104	105.1
Dal	131	NA	30	91
Vegetables	69.7	93.5	39	88
Dal Dhokli	213	222	118	NA
Kadhi	NA	NA	NA	87.3
Sambhar	NA	NA	NA	86.6
Khichdi	173.3	114	92.5	NA
Rice and *kadhi*	NA	399	NA	NA

Other studies found that the quantity of the food served in the MDMS in Rajasthan did not reflect the norms (MHRD, 2013b; 2014b). In the 2013 JRMs, an inadequate quantity of vegetables was found in 18 of 20 states, including in Rajasthan. Insufficient provision of fruit was observed by the JRMs to Arunachal Pradesh (MHRD, 2013c) and Rajasthan (MHRD, 2014b). The inadequate quantity of the MDM was specifically mentioned for 13 of the 20 states/UTs covered by the 2013 JRMs. The CAG (2015) also found that the MDM was inadequate in quantity in nine states/UTs.

Previous studies have found inadequate quantity to be a particular problem in the centralised model (MHRD, 2013a; 2013b; 2013e). In Andhra Pradesh a centralised kitchen was found to be providing food of a lower quantity than the guidelines (MHRD, 2013d). In Haryana the food provided by ISKCON was found to weigh less than the NGO reported (*ibid*). The CAG (2015) reports that in Mumbai, ISKCON had lifted approximately one third of the specified quantity of rice, resulting in the provision of just 40g of rice per child. The CAG also reported that 157 of 386 samples in Delhi where the MDMS is entirely centralised, were found to have an inadequate quantity of calories and protein.

Three trends emerge from the data presented above. Firstly, the MDM frequently does not meet GOI guidelines on the quantity of ingredients used. From this, one can infer that the protein and calorie content is also insufficient. Secondly, the quantity of food varies. Even within the study area, the quantity of the MDMS served varied between the delivery models, schools and even between the type of meal. Third, the above shows that determining the quantity of food provided in the MDMS is difficult due to a lack of accurate information at the school-level. Determining whether rights-holders receive their entitlements is therefore difficult.

Sections 6.2.1 and 6.2.3 have indicated inadequate vegetable provision in the MDMS. Given the nutritional importance of vegetables and the inadequate consumption of vegetables in the sampled households (Section 5.2.2), it is necessary to consider the provision of vegetables in further depth. In the first stage of the fieldwork, vegetables were observed being served at four schools; schools 17 and 20 in Kotra and 29 and 31 in Khamnor. In the second stage of the research, vegetables were reported to be served a total of 20 times; six times in CS1, five times in CS2, twice in CS3 and seven times at CS4. However, what teachers described as vegetables (*sabji*) were typically potato; a trend found more widely in the MDMS (IA1). Potato was typically served with a small amount of additional vegetable (Figure 6.2). I observed green vegetables being served on just three occasions.

Figure 6.2: Potato as the main component of vegetable dishes. Top left: CS2 (decentralised). Top right: school 31 (centralised). Bottom: school 31 (centralised).

Although potatoes are a good source of energy and carbohydrates, they do not provide the same level of minerals or iron as green leafy vegetables and provide considerably less calcium, β-Carotene (vitamin A) and vitamin C (Table 6.4). Therefore, the absence of vegetables, particularly green leafy vegetables, significantly decreases the micronutrient content of the MDMS.

Table 6.4: Nutritional content in 100g of an edible portion of vegetables

(Gopalan *et al*., 2014)

	Potato	**Spinach**	**Drumstick Leaves**	**Aubergine**	**Bottle gourd**	**Tomato**
Energy (kcal)	97	26	92	24	12	20
Protein (g)	1.6	2	6.7	1.4	0.2	0.9
Minerals (g)	0.4	1.7	2.3	0.3	0.5	0.5
Carbo-hydrates (g)	22.6	2.9	12.5	4	2.5	3.6
Calcium (mg)	10	73	440	18	20	48
Iron (mg)	0.48	1.14	0.85	0.38	0.46	0.64
Carotene (μg)	24	5580	6780	74	0	351
Folic acid (total) (μg)	17	123	0	34	0	30
Vitamin c (mg)	17	28	220	12	0	27

Vegetables should also be served in *khichdi*, but were found to be lacking entirely or to only be included in very small quantities (Figure 6.3).

Figure 6.3: The absence of vegetables in *khichdi*. Left: school 16 in Kotra. Right: school 38 in Kumbalgarh. Both schools have decentralised MDM provision.

Overall, it is clear from figures 6.1 and 6.2 that students were not receiving the 50-75g of vegetables they were entitled to.

Teachers at schools served by centralised kitchens confirmed the inadequate vegetable content of the MDM. Teachers complained that the vegetables were potato and pumpkin (schools 31 and 32), that the

vegetables were not green or high quality or fresh vegetables, such as okra or peas (schools 28, 30 and 31) and that the quantity of vegetables was insufficient (school 31).

Seasonal fruit should be served once a week (Table 4.2.2). Eleven teachers (26%) admitted that fruit was not served this frequently. Teachers at schools 16 and 21 reported that fruit was served twice a month and the teacher at school 25 reported that fruit was sometimes served once a month. Eight teachers, all in Khamnor and served by the centralised kitchen, reported that fruit was never served. Observation showed that fruit was served even less frequently than reported. Across the research, fruit was reported to have been served on just three occasions. Notably, we never witnessed the serving of fruit, as it had conveniently been served (or perhaps not) before our arrival. The children's essays from CS1, CS2 and CS3 confirmed that fruit was provided sometimes. For example, one student at CS2 wrote '[they] give fruit, but once in every two weeks, sometimes [they] don't give and sometimes [they] give every Tuesday'. Students at CS4 confirmed fruit was not served. For example, a student in class VI wrote: 'in our food, there is no fruit... there should be banana, grapes and *chiku'*. The desire to have fruit in the scheme was expressed in many essays. Thus, not only is inadequate vegetable provision a particular problem in the centralised model of delivery, so too is the inadequate provision of fruit.

In Khamnor, the NGO occasionally provided amla candy, made from amla (Indian gooseberry) and sugar. The NGO considered amla to be a replacement for fruit. The staff at the centralised kitchen reported that amla candy was provided in 20-25 schools per week. As there are nearly 400 schools in the block, a school would receive amla candy every 16-20 weeks. The employees at the centralised kitchen stated that they had previously served fruit but no longer did. The staff in Jaipur reported the same, adding (incorrectly) that in Rajasthan there is the option not to provide fruit. Amla candy was only observed being served twice at CS4. In the school records, amla candy was reported to have been served on just two days of 842 days. In the essays from CS4, students wrote that they sometimes received amla, yet the students did not perceive this as fruit.

The staff at the centralised kitchen and the DEO knew that amla candy was served instead of fruit, but emphasised the health benefits of amla, particularly the high vitamin C content. Indeed, 100g of amla has 600mg of vitamin C, compared to 7mg in 100g of banana and 30mg in 100g of orange (Gopalan *et al*., 2014). Amla is also cheap and retains a high vitamin C content when heated or dried (*ibid*). However, 100g of banana provides 116 kcal and 1.2g of protein, compared to 58 kcal and 0.5g of protein in 100g of amla (*ibid*). Also, whilst a whole banana would weigh at least 100g, when amla candy is provided children receive just two small pieces, which do not come close to equalling 100g. Clearly, two small pieces of amla candy consumed occasionally do not have the same nutritional value as a piece of fruit consumed weekly.

Students in the study area were therefore not receiving the quantity of fruit and vegetables that they were entitled to. In Section 5.2.2, I showed that vegetable consumption in the sampled households was inadequate; across HS1 and HS2, only 14.7% of people reported that they had consumed vegetables every day in the previous week. The MDM therefore has an important role to play in ensuring that children can consume the recommended 150-300g of vegetables per day (NIN, 2011). The absence of vegetables and particularly green leafy vegetables in the MDM in the study area is likely to be to the detriment of the nutritional status of children. As shown in Section 5.2.2, fruit was also lacking in the diets of most sampled households. Fruit was consumed daily in just one household in HS1 and four in HS2. Across all participants in HS1 and HS2, 60.5% had not consumed fruit in the previous week. The MDMS is therefore an important means through which to get children to consume fruit. Moreover, as was evident in the student essays, children like fruit. It seems likely that the provision of fruit would encourage more students to consume the MDM.

6.2.3 Explanations

The provision of a MDM that does not adhere to the norms on quantity can be interpreted as the duty-bearers at the school-level failing to fulfil their duties. It might therefore be tempting to place the blame on teachers. Yet, whether teachers (and CCHs) in the decentralised model can provide the meal as per norms is largely determined by their capacity, affected by financial, food and human resources. Firstly, the provision of fruit and vegetables is constrained by cost. At the time of research, the budget was INR 3.59 for lower primary students and INR 5.38 for upper primary students. One kilogram of bananas, roughly eight bananas, cost approximately INR 30 or INR 3.75 per child. The cost of fruit would therefore be greater than the budget for lower primary students, leaving no money for other ingredients. If a teacher wished to provide fruit, they must either reduce the portion of fruit served or cut corners on the quantity of other ingredients to save enough money to purchase fruit occasionally. In total, 16 of 32 teachers considered the overall budget for the MDMS to be insufficient.

Secondly, teachers are not required to keep records on the quantities of ingredients used other than grain. There is therefore no transparency regarding the quantity of *dal*, vegetables and fruit used. Officials only visit to monitor the MDMS occasionally (Section 8.3.2) and the scheme is not monitored over a prolonged period. In the absence of rigorous monitoring, schools can easily deviate from the menu and the norms on quantity.

Thirdly, in schools without a market nearby, teachers must purchase ingredients elsewhere and bring them to school. Often teachers travel by public transport and may have to walk some distance to reach

their school. One can therefore envisage the difficulty a teacher might face in carrying 50 bananas to school. Access to fruit and vegetables may also be limited by seasonal availability.

Fourthly, the process of serving the MDM does not include measurement. At no point during the research was anyone observed measuring food. In particular, there was no uniform difference in the quantity of food served to lower and upper primary students. If there was enough food, older children would typically be served more; however, the portion was not measured. The fixed entitlements of each ingredient are therefore merely abstract notions.

These four issues stem from flaws in the design of the MDMS and the insufficient allocation of resources. The failure of NGOs to adhere to the guidelines on quantity and the menu, however, cannot be explained in the same manner. It is not the case that NGOs face the same public service gap as schools. Firstly, in the study area, district officials were allowing NGOs to follow their own menu, rather than holding them to account for their deviation. NGOs were allowed discretion in the delivery of the service, which led to the MDM not being provided as per the norms. Secondly, NGOs receive extra funding from donations (Section 7.6.2), which when combined with the economies of scale for the operation, ensure that cost is not a limitation in the centralised delivery model. Thirdly, in decentralised kitchens, the quantity of the food should be calculated in the morning according to attendance. In centralised kitchens, NGOs calculate the quantity based on the previous day's attendance. As it is unlikely that the number of students attending is the same every day, the quantity of food will vary. One can therefore expect that on some days the quantity of food will be sufficient to meet the norms and on other days it will be insufficient. One can also expect that the quantitative adequacy of the MDM will vary between schools.

6.2.4 Implications

In Section 6.2.3, I showed that the quantity of food served in the MDMS does not always adhere to the norms. Therefore, one can expect the nutritional contribution of the MDM to be less than was calculated in Appendix D.1. The implications of a quantitatively inadequate MDM for overall food intake depend on whether the MDM is a substitute for or a supplement to food at home. I therefore examined whether children also consumed lunch at home and how home-cooked food compared to the MDM.[2] Of the 345 respondents in HS1 whose children consumed the MDM daily, 44 (12.9%) said that their children also ate lunch at home, 63 (18.4%) said their child sometimes ate lunch at home and 235 (68.7%) said their

[2] The best way to assess substitution is to examine changes in consumption patterns after the introduction of a SFP. Given the near-universality of the MDMS, this was not possible.

child did not eat lunch at home. Reports of consumption of lunch at home were compared to food security (Table 6.5). A chi-square test of independence found a significant relationship between food security and eating lunch at home, $\chi^2(3)=11.363$, $p=0.009$; those consuming lunch at home were more likely to be food secure than those not consuming lunch at home.

Table 6.5: Food Security and lunch consumption, household survey one

Food security Category	**Eat lunch home**		**Don't eat lunch at home**	
	Freq.	**%**	**Freq.**	**%**
Secure	26	59.1	175	45.5
Mildly Insecure	11	25.0	53	13.8
Moderately Insecure	3	6.8	56	14.5
Severely Insecure	4	9.1	101	26.2

The data from the 24-hour food consumption recall indicates that the consumption of a second lunch at home happened less frequently in the case studies. Four students in the first household recall ate lunch at home; one student at CS1 ate a plate of *poha* (flattened rice) and three children at CS2 ate two *roti*. In all four cases, the student had consumed some form of breakfast. In the second recall, eight students all from CS3, consumed an additional half *roti* on returning from school. None of these children had consumed breakfast. Overall, additional food was consumed in just 12 of 406 cases. Thus, for most children the lunch consumed at school is the only lunch that they eat.

If the MDM were a supplement, one would expect the number of meals consumed on a school day to be higher than on a non-school day. There is, however, only a 0.9% increase in the number of students consuming three meals on a school day, indicating that the MDM substitutes food at home (Table 6.6).

Table 6.6: Number of meals consumed from recall

Case study		**Number of meals consumed per day**					
		When consumed MDM		**When lunch was consumed at home**			
		2	**3**	**0**	**1**	**2**	**3**
CS1		29	32	1	0	19	14
CS2		3	25	0	2	8	11
CS3		57	2	0	0	10	0
CS4		107	24	0	0	35	8
Total	**Freq.**	**196**	**83**	**1**	**2**	**72**	**33**
	%	**70.3**	**29.7**	**0.9**	**1.9**	**66.7**	**30.6**

In Section 5.2.2, I showed that for the vast majority of sampled households the food consumed at home was lacking in diversity. Nutritious food, such as vegetables, *dal*, fruit eggs and meat were consumed infrequently. Moreover, household recall indicated a typical lunch when children were not at school. At CS1 and CS2, this was two *roti* and half a cup of vegetables. At CS3, this was one *roti* and either one cup of *kadhi* or raw chilli. At CS4, two *roti* and one cup of *kadhi* was typically consumed. Although the exact nutritional content would vary depending on the quantities of each ingredient, across all case studies lunch was lacking in protein. At CS3 in particular, lunch at home was lacking in quantity and quality. Thus, a diverse and nutritious MDM would most likely be of greater nutritional benefit than the food consumed at home. It must be noted, however, that it is unclear whether the same type of food would be provided on a weekday in the absence of the MDMS.

Qualitative accounts also indicate that the MDM commonly substitutes lunch at home. More than half of households in HS2 thought that the MDM helped them save time (Section 5.2.3), indicating that they did not cook as frequently when the MDM was provided. One third of households in HS1 and two thirds in HS2 thought the scheme helped them save food (Section 5.2.3), again indicating that the MDM substituted food consumed at home.

This research has not resolved the issue of whether the MDM is a substitute or a supplement. However, the data indicates that for most children in the study locations, the MDM was not consumed as well as lunch at home. Inadequate food consumption at home was also shown in Section 5.2.2. In the context of the inadequate nutritional content of the MDM, this is problematic. As Khera writes: 'insofar as the MDM is a substitute, the case for nutritious meals at school is even stronger' (2006: 4746).

6.2.5 Perceptions of Quantity

Hitherto, the discussion of quantity has centred on whether the amount provided adheres to norms. Now, attention turns to whether rights-holders and their representatives considered the quantity of the MDM to be sufficient to meet their needs. In HS1, just over half of the respondents thought that the quantity was sufficient (Figure 6.4). Notably, the highest proportion of respondents reporting that the quantity was sufficient was in Khamnor, which is served by the centralised kitchen.

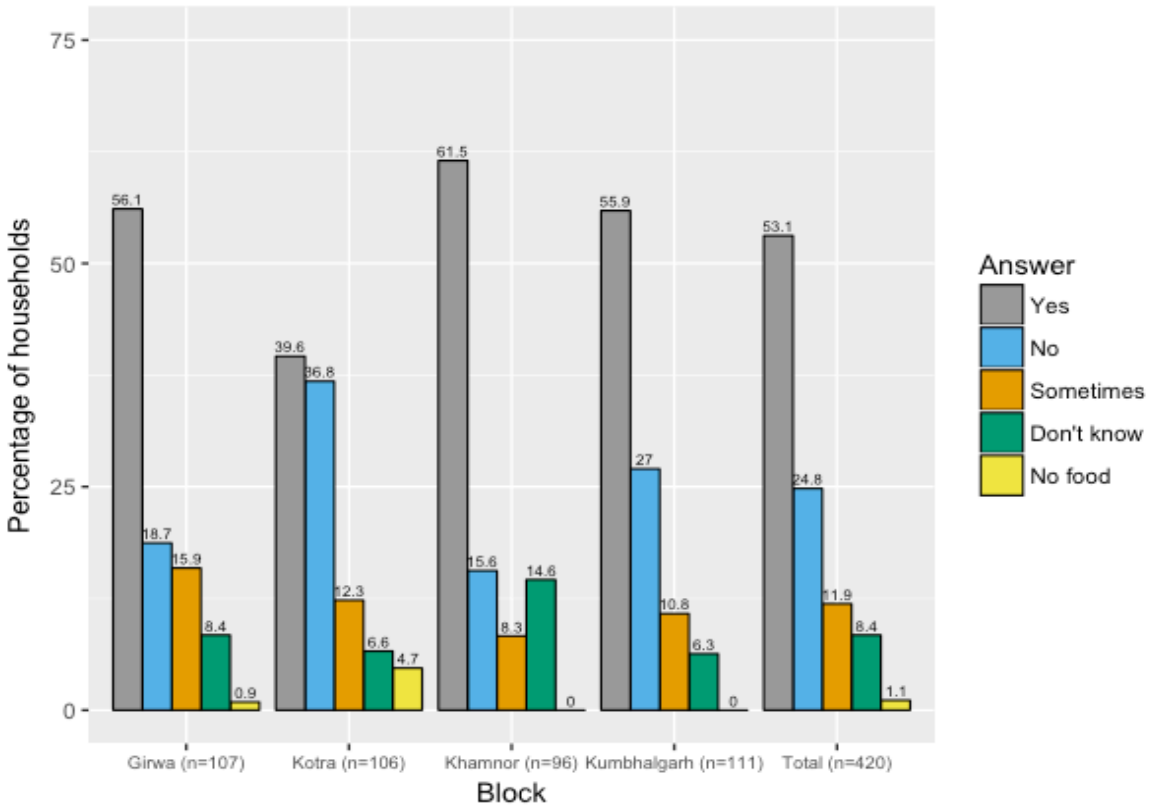


Figure 6.4: Perception of MDM quantity by block, household one

A chi-square test of independence found significant differences between answers by location, $\chi^2(6)=18.989$, $p=0.004183$. Pairwise-testing reveals significant differences between Girwa and Kotra ($p=0.0225$) and Kotra and Khamnor ($p=0.0055$). Therefore, perceptions of quantity (and likely the actual quantity) of the MDM varied spatially. Table 6.7 shows the responses to the question and food security levels. A Kruskal-Wallis test found significant differences between food security category, $H(2)=7.8877$, $p=0.04839$; however, a significant difference was not found between any of the food security categories. Perceptions of quantity varied between schools. For example, at schools 12 and 14, no parent thought that the quantity of the MDM was sufficient, whereas all parents at schools 24 and 36 perceived the quantity to be sufficient. There was no significant difference between caste and perception of quantity, $H(3)= 4.6239$, df = 3, 4.6239, $p=0.2015$.

Table 6.7: Quantity and food security, household survey one

Opinion on quantity	Food Security Category (number of respondents)			
	Secure	Mildly Insecure	Moderately Insecure	Severely Insecure
Enough	121	31	28	43
Not enough	34	15	15	40
Sometimes enough	24	9	7	10
Do not know	17	6	5	9
No food	1	0	3	2

In HS2, 118 parents (73.3%) considered the quantity of the MDM to be sufficient; a greater proportion than in HS1. Just 24 thought that the food was not enough (14.9%), six (3.7%) thought that the food was sometimes enough and 13 (8.1%) did not know. A Fisher's exact test of independence found a significant difference between case studies (p=<0.001). Echoing the results from HS1, the quantity of the MDM was most commonly considered sufficient at CS4 (Figure 6.5). The quantity was most widely considered insufficient at CS2. There was no difference in perceptions of quantity by caste (p=0.7223) or income category (p=0.515).

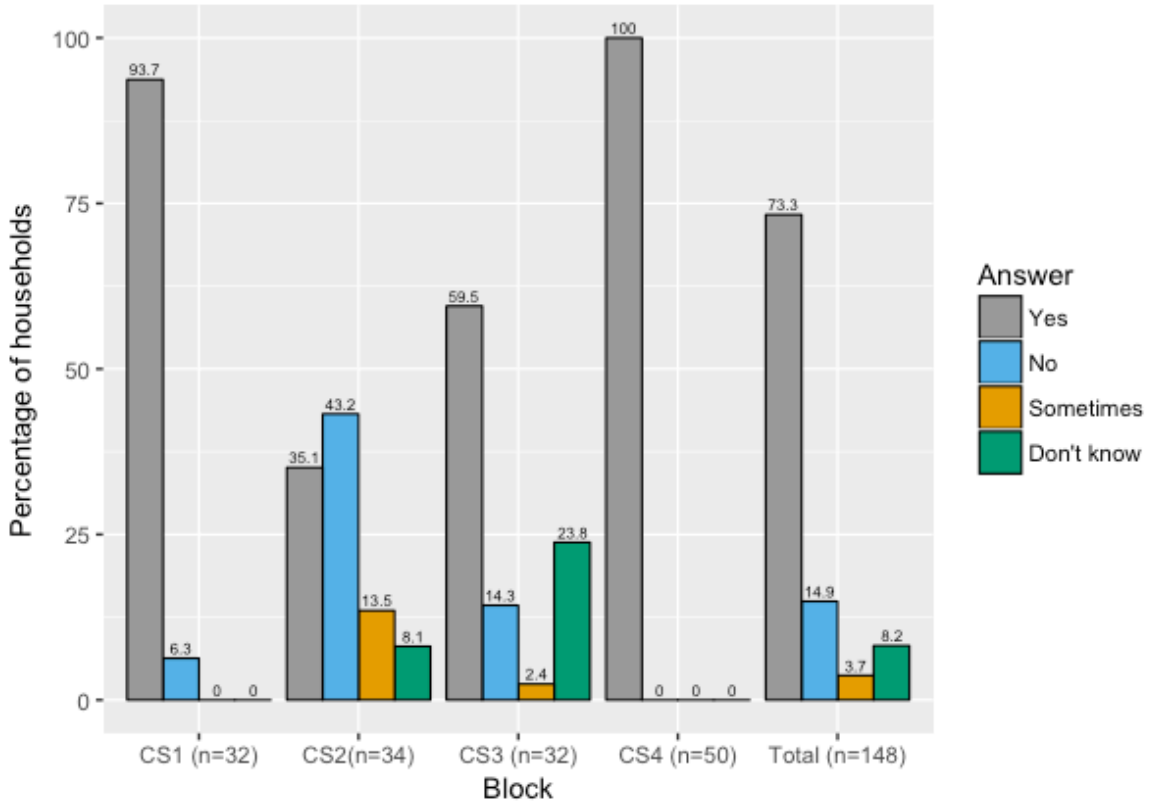


Figure 6.5: Perception of MDM quantity by case study, household survey two

Of the 332 students, 189 (56.9%) thought that the food at school was enough, 23 (6.9%) thought it was not enough and 120 (36.1%) thought that the quantity was sufficient sometimes (Figure 6.6). A Fisher's exact test found a significant difference between response by case study (p=<0.001). Significant differences were found between CS1 and CS2 (p=0.0019), CS1 and CS4 (p=<0.001), CS2 and CS4 (p=<0.001) and CS3 and CS4 (p=0.0019). The most satisfied students were at CS1 (Figure 6.6.). The most variation was found at CS4, where 76 (68.5%) thought that the meal was only sometimes sufficient. The results from the student survey at CS4 contrasts with the results from HS2, in which all adult respondents considered the food to be enough. The different responses of parents and children highlights the importance of considering both perspectives in research on the MDMS and SFPs more generally. There are no clear patterns in opinions by grade; however, the analysis is limited by sample size.

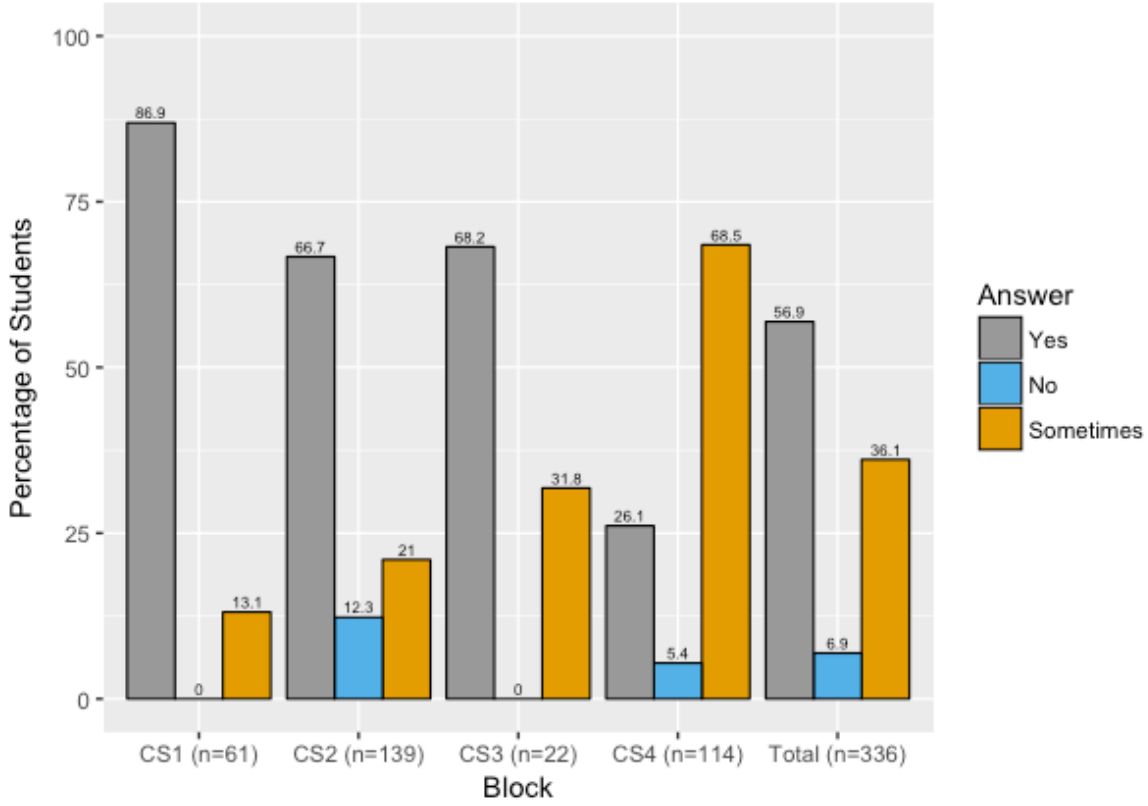


Figure 6.6: Perception of MDM quantity in the student survey

Qualitative data provides further insight into perceptions of quantity. In CS1, seven students complained about the quantity of *roti*, rice, *kadhi* and potato. The students were specific in their complaints. For example, one student wrote: 'in the *kadhi*, there is less gram flour. In the potato vegetables, few vegetables are put and in our school there is no rice. [I] want rice!'. Of the 10 interviewees, eight thought that the quantity was insufficient; four mentioned the inadequate quantity of *roti* (just one or two) and four considered the quantity to be insufficient due to corruption, explaining that the teacher or cook

took food home and therefore less was given to the children. The focus group participants gave the same mixed answers.

At CS2, 16 students mentioned insufficient quantity in their essays. In particular, students complained that 'just one *roti* is given'. Others considered the quantity to be sufficient. For example, a grade X student wrote that 'All children eat a stomach full of food'. The different perceptions of quantity may vary due to the different needs of the children, which have been shown in Chapter 5. Of the 10 parents interviewed at CS2, five thought that the quantity was insufficient, stating that children were only given one *roti*. The focus group participants had mixed opinions; in the first, participants thought that the quantity was sufficient and specifically mentioned the absence of corruption compared to other schools. In the second, although participants also perceived the school to be better than others, they noted that sometimes the quantity of the MDM was insufficient.

At CS3, the children were positive about the quantity of food, stating that after eating their stomachs are full. Parents were less satisfied. Of the 10 interviewed, two were happy with the quantity of food, seven were unhappy and one did not know. Four mentioned that only one *roti* was served. For example, the interviewee from household 18 stated that 'a minimum of three *roti* is needed, children stay half-full'. Five of the seven households directly attributed the insufficient quantity of food to the only teacher at the school taking the grain intended for the scheme to her house.

At CS4, most students did not mention quantity. Those that did, suggested an increase in quantity would be an improvement. For example, a grade VI student wrote 'we need three spoons of rice' and another student also in grade VI wrote 'it would be a good thing to have four *roti*'. All interviewees and focus group participants were satisfied with the quantity, supporting the results from the household survey (Figure 6.5). Three participants mentioned that sometimes extra food was distributed among the children and households.

Finally, observation indicated that in some schools the quantity of food available was insufficient to meet demand. In several schools, the children wanted second helpings but there was no more food available. The food was clearly insufficient in quantity in schools 22 in Kotra, schools 23 and 31 in Khamnor and 33 and 42 in Kumbhalgarh. In other schools, there was enough food for all those who wanted seconds and occasionally excess was given to animals. Observation showed quantity particularly varied at schools served by the centralised kitchen. Indeed, the staff at the centralised kitchen said that the only complaints ever received are that there is too much or too little food (IN5).

6.3 Quality

Figures 6.1 and 6.3 show not only variation in the type and quantity of food served, but also potential variations in quality. To being to explore the quality of the food in the MDMS, parents and students were asked their opinions. In HS1, 294 respondents (71.9%) thought that the food served in the MDMS was 'very good' (Table 6.8). Kruskal-Wallis tests found no significant difference in the answers by block, $H(3)=3.3497$, $p=0.3408$ or by caste, $H(4)= 9.166$, $p=0.05708$.

Table 6.8: Perceptions of quality, household survey one

Block		Opinion of the quality of the MDM (Number of parents)				
		Very Good	Good	Fine	Bad	Very bad
Girwa		75	8	5	17	0
Kotra		67	10	5	17	1
Khamnor		78	11	5	17	0
Kumbalgarh		74	5	0	14	0
Total	**Freq.**	294	34	15	65	1
	%	71.9	8.3	3.7	15.9	0.2

The responses from HS2 showed a similar pattern (Table 6.9), although a greater proportion considered the food to be 'good' than 'very good'. Only two households considered the food to be 'bad'. There was no difference in perceptions by caste ($p=0.8605$).

Table 6.9: Perceptions of quality, household survey wo

Case study		Opinion of the quality of the MDM (Number of parents)					
		Very Good	Good	Fine	Bad	Very bad	Don't Know
CS1		7	20	2	0	0	2
CS2		8	12	9	2	0	4
CS3		5	19	7	0	0	4
CS4		13	31	6	0	0	0
Total	**Freq.**	**33**	**82**	**24**	**2**	**0**	**10**
	%	**21.9**	**54.3**	**15.9**	**1.3**	**0.0**	**6.6**

Most students were positive about the food served; 153 (46.2%) considered the meal to be 'very good' and no students reported that the meal was 'very bad' (Table 6.10). However, results were statistically different by case study, $H(3)= 33.536$, $p=<0.001$. Students in CS1 were the most positive about the food; more than 90% thought the food was 'good' or 'very good' (Table 6.10). All but one student at

CS3 considered the meal to be 'good' and 80% of students at CS2 thought that the meal was 'good' or 'very good'. At CS4, although 33.9% of students considered the food to be 'very good' and 47.0% thought that the food was just 'fine'.

Table 6.10: Frequency of student opinion of MDM quality by case study school

Case study		Very Good	Good	Fine	Bad	Very Bad
CS1		32	23	4	0	0
CS2		82	25	26	2	0
CS3		0	21	1	0	0
CS4		39	22	54	0	0
Total	**Freq.**	**153**	**91**	**85**	**2**	**0**
	%	**46.2**	**27.5**	**25.7**	**0.6**	**0.0**

Although useful, assessing quality in this manner does not provide any insight into why food is considered 'good' or 'bad'. Essays, interviews and open-ended questions in surveys were therefore used to assess the qualitative dimensions of food. When asked their overall opinion of the scheme in HS1, 23 participants mentioned low quality. Thirteen households specifically mentioned that the quality of food was bad as the food, particularly *dal dhokli,* was raw. For example, households seven and nine at school 19 commented that the food was raw. From first-hand experience, I can confirm that, due to the size of the *dhokli,* the food was indeed raw and nearly inedible (Figure 6.7).

Figure 6.7: Large, raw and almost inedible *dal dhokli* at school 19

A second common complaint was that the *roti* were of poor quality. At CS1, students noted that the quality of the roti varied; 'sometimes the *roti* are raw and sometimes they are burnt'. I observed that the quality of *rotis* varied due to the pressure on the one cook to produce a large number in a short period of time (see Section 7.4.2). The quality of *rotis* was a particular issue at schools where the MDM was provided by the centralised kitchen. Households with children at schools 24, 28, 31 and 32 complained that the *roti* was hard, raw, burnt or just 'bad'. At CS4, six students wrote that they did not like the *rotis*, because they were hard and sometimes raw or cold. Households with children at schools one and five also mentioned the quality of *rotis* had been poor when the Naandi kitchen served the food.

The poor quality of *rotis* from centralised kitchens has also been recognised elsewhere, for example in the 2013 JRM to Madhya Pradesh (MHRD, 2013b). When produced in mechanised centralised kitchens, *rotis* are made by machine and are not fresh, which makes them hard. Centralised production also means that the *roti* are not made according to local preference.

The quality of the MDM was also perceived relative to food consumed at home. In HS1, 39 participants thought that the MDM tasted like the food at home and 10 said the problem was that it did not. The food not tasting like home was repeatedly mentioned in Girwa in reference to the food from the Naandi Foundation. Students at all case studies commonly wrote that there was insufficient oil, salt or spice in the MDM. The MDM was considered to be good quality as the variety of food served in the MDM was not available at home. For example, at CS4, one student wrote 'at home, every time *roti* and vegetable is available, but here rice is available every day'. In general, participants considered that items such as *dal*, green vegetables, milk, eggs, meat and sweets were indicative of a 'good' diet, and the consumption of *roti* with little to no vegetables was a 'bad' diet. Interviewees commented that they knew their diet was 'bad'.

The quality of the MDM therefore varied considerably. Sometimes the food was raw, burnt and, when the MDMS is provided by NGOs, the *rotis* are hard. Quality varied however, between schools and depending on the meal served.

6.4 Safety

6.4.1 Illness

I examined safety using household surveys, expert interviews and the analysis of newspaper articles.[3] Respondents were asked whether their child had been ill after consuming the MDM. Twenty-five of the 428 respondents answered affirmatively, of which 12 were in Girwa (Table 6.11). In HS1, two respondents mentioned that illness occurred when the Naandi Foundation were supplying the food. In both surveys, most participants did not report their children experiencing illness because of the MDM. No parent expressed serious concern for the safety of the MDM served at their child's school and no child wrote that they had become ill from the MDM. There was, however, an awareness that incidents had occurred elsewhere. For example, in the first interview at CS2, the mother stated that she knew that a lizard was found in the MDM when the Naandi Foundation were supplying the meal. The interviewee

[3] Testing multiple samples of food from each school in a laboratory is the best way to examine safety. Unfortunately doing so was beyond the scope of this research.

also stated that she had heard some children had died due to the MDMS, so always ask her daughter about the MDM.

Table 6.11: Experiences of MDM-caused illness in the first and second household surveys

Survey	Location		Yes	No	Don't Know
HS1	Girwa		12	90	6
	Kotra		6	94	4
	Khamnor		6	91	3
	Kumbhalgarh.		1	103	2
	Total	**Freq.**	**25**	**378**	**15**
		%	**6.0**	**90.4**	**3.6**
HS2	CS1		7	25	1
	CS2		4	27	7
	CS3		5	26	2
	CS4		3	35	9
	Total	**Freq.**	**19**	**113**	**19**
		%	**12.6**	**74.8**	**12.6**

Across India, however, the MDM sometimes causes illness. Between 2004 and 2013, 2,069 children are reported to have fallen ill after consuming the MDM (Barnagarwala, 2013). The highest number of children falling ill was in Delhi (*n*=525), where the MDMS is supplied by NGOs (*ibid*). In contrast, Thakur (2016) analysed media publications between 2014-2016 and found that 4,000 children had fallen ill in the period due to the MDM. The difference between the two figures is therefore sizable. Either way, both figures indicate that safety in the MDMS is a problem. I conducted an analysis of media articles on this topic (see Section 3.3.9) to explore what was happening in such cases. The most common cause of illness reported was the contamination of food by an animal, often a lizard.[4] Of the 46 articles analysed that specified the source of the food, the MDM came from an NGO in 24, a SHG in 15 and a school in seven. This is not to suggest NGOs are more likely to cause illness; NGOs typically supply the MDM in urban areas where one expects such instances to be more commonly reported in the media. However, it shows that the food is not always safe in any of the delivery models.

[4] Specific incidents are examined in more depth in Chapter 8.

6.4.2 Procedures and Infrastructure

Here, I consider the extent to which the safety procedures outlined in Section 4.4.5 were adhered to. Firstly, teachers must taste the food before it is served. I did not observe a teacher tasting the food before it was served to students at any point. Second, a suitable kitchen-cum-store is necessary to prevent the contamination of food. Table 6.12 details the progress in the construction of kitchens. There is a discrepancy between the number of sanctioned kitchens and the number completed, in progress or yet to be started. Moreover, a significant number of kitchens have not been completed. Consequently, only 80.5% of schools in Rajasthan, 100% in Rajsamand[5] and 78% in Udaipur have a kitchen.

Table 6.12: Kitchen-cum-store progress from 2006-2016 (GOR, 2016b)

Location	Total sanctioned	Progress				Sanctioned - progress
		Completed	In progress	Yet to start	Total	
Rajasthan	77,298	57,425	2,951	10,968	71,344	5,954
Rajsamand	1,994	1,798	0	0	1,798	196
Udaipur	4,235	3,148	537	349	4,034	201

Of the 32 decentralised schools included in the sample, there was a kitchen at 28. However, observation showed that the presence of a kitchen does not mean that the kitchen is either suitable or used. The food was not prepared in the kitchen in four of the 28 schools; the meal was prepared in the open at three schools and in the cook's home at one. Figure 6.8 shows the varying quality of cooking areas and figures 6.9-6.11 indicate the varying quality of kitchens across the sampled schools.

[5] Notably, all schools in Rajsamand are reported to have a kitchen, yet Akshaya Patra is supplying the MDM across Khamnor block.

Figure 6.8: Different cooking facilities. Top left: A clean kitchen with appropriate storage at school 39. Top right: a fireplace, in the open and located near classrooms at school 12. Bottom left: a fireplace with ventilation at school 35. Top right: a gas stove next to the fireplace and open window at school 33.

Figure 6.9: A clean, adequately sized kitchen with appropriate storage at school 39

Figure 6.10: A make-shift kitchen at school 18

Figure 6.11: An open sided kitchen at the third case study school

The inadequate storage of ingredients was observed occasionally (Figure 6.12). All schools had appropriate utensils, except school 14 which reported to have had a recent break in. Schools also had plates. On one occasion, however, despite school 13 having plates, students were eating from scrap pieces of paper instead.

Figure 6.12: Incorrect grain storage at school 12. The containers of grain were not properly closed, and consequently cobwebs were found inside. Open bags of grain were left on the floor.

The GOR (2016b) reports that a gas connection is present in 81.2% of schools in Rajasthan, 100% of schools in Rajsamand and 97.4% in Udaipur. In the remaining, firewood is used. Yet, schools with a gas connection may choose to use firewood as it is cheaper; 13 of 32 schools were using gas, often as well as firewood (Figure 6.13).

Figure 6.13: Fuel-use at school 40, Kumbalgarh. Left: a firewood stove, with a chimney above. Right: a gas connection. Both were in use.

The GOR (2016b) reports that 95.7% of schools in Rajasthan, 97.9% in Rajsamand and 100.6% in Udaipur have hand-washing facilities. Data from the Rajasthan Department of Education for 2015-2016, however, shows that a far smaller percentage of schools have hand-washing facilities (Table 6.13). Drinking water and a functioning toilet are reportedly found in most schools.

Table 6.13: Infrastructure in schools in the study area (NUEPA, 2016)

Facilities	**Rajasthan**		**Rajsamand**		**Udaipur**	
	Number	**%**	**Number**	**%**	**Number**	**%**
Total number of schools	67,483	-	1,768		3,888	
Separate toilets	67,480	99.0	1,768	100	3,888	100
Functioning toilet	66,611	98.7	1759	99.5	3702	95.2
Hand-washing facilities	35,077	52.0	1167	66.0	2283	58.7
Drinking water	65,308	96.8	1766	99.9	3745	96.3

The presence of water, sanitation and hygiene facilities across the 43 sampled schools according to U-DISE data is summarised in Table 6.14. Contrary to this data, teachers at nine of the sampled schools reported that there was no drinking water at the school. Consequently, cooks or students were forced to collect water from the nearest source for cooking. The U-DISE data suggest that only one school did

not have a toilet; however, toilets were only usable in 18 of the sampled schools. Toilets were often locked, filled in with rubble or were too unclean to use. Children were observed washing their hands in 25 schools; however, in five it was clear from the behaviour of the teachers and children that this was atypical. Children washed their plates after lunch and sometimes before; however, this was not always with soap and at school 18, soil was used. At no point was a cook or teacher observed washing their hands. Observation therefore shows a considerable gap between a facility existing and a facility being used.

Table 6.14: School facilities school report cards (NUEPA, 2016)

Facilities		**Frequency**
Drinking Water Source	Tap	6
	Hand-pump	24
	Well	1
	Other	8
	None	2
Drinking water status	Functional	32
	Not working	9
Hand-washing facilities*	Yes	4
	No	6
Toilets	Separate Toilets	42
	No toilets	1
	All toilets functional	40

*Two types of forms are used, of which one did not record whether there were handwashing facilities.

Therefore, the infrastructure required to ensure that the MDM is cooked in clean surroundings, that the children and the CCHs are clean and that food cannot be contaminated is not always present. The MDM is often not prepared in a sanitary environment, raising concerns for food safety. In the absence of teachers tasting the meal and any form of safety checks, if the MDM has been contaminated it will only be indicated once students are taken ill.

6.4.3 An Argument for Centralised Kitchens?

The inadequate infrastructure at schools and the implications for hygiene and food safety is frequently used as a justification for centralised kitchens (e.g. Bose, 2013; Singh, 2015). Figure 6.14, an article from a newspaper in Udaipur, shows how the two models are compared. I can confirm from observation

that there are significant differences between the two types of kitchen. The hygienic mechanised centralised kitchens, where staff are clean, wearing aprons and hair nets contrast starkly with the facilities and procedures in place in the decentralised model.

Figure 6.14: Centralised versus decentralised kitchens. From the *Dainik Bhaskar* (Udaipur edition), 23 April 2016. On the left is a picture of the Akshaya Patra kitchen in Nathdwara with the caption 'Modern kitchen: in one hour 40 thousand rotis'. On the right, is a decentralised kitchen with the caption 'and in government [schools]: this condition'.

Yet, the centralised model presents an additional safety concern; the temperature of food. The 'temperature of the mid-day meal when served should be maintained at 65°C. Microorganisms multiply at a fast pace when the food is kept… between 5°C and 60°C (and therefore, food should be served to children immediately after being cooked)' (MHRD, 2015c: 9). In decentralised kitchens, food was typically cooked just before serving and was therefore likely to have been above 60°C, although schools had no means of checking the temperature. At centralised kitchens, however, food is packed early in the morning and remains in the container for several hours before it is consumed. Six expert interviewees expressed concern that during this time the temperature would reach between 5-60°C allowing bacteria to rapidly multiply (IA11, IA13, IG4, IG7, IN7, IO2). A state-level official stated that 'We have some problems to solve in MDM in centralised kitchens… They cook the MDM early and pack to each school between 9 and 10am. For three hours the meal is sitting there' (IG4). A district

level official, however, did not see temperature as a problem, remarking that it was 'just like tiffin' (IG6).

Previous studies have found the temperature of food provided by NGOs to be inadequate[6]. The JRM in Andhra Pradesh found that the food served by Akshaya Patra was between 45- 60°C and was 'cool or luke warm when served' (MHRD 2013c: 62). The JRM to Delhi found that the food was between 26-69°C and was below 60°C in six of 14 schools (MHRD, 2013a). The Swami Sivananda Memorial Institute (2014) found that the MDM from a school in Delhi was between 30-45°C. Notably, several students at CS4 wrote in their essays that the food served was not hot.

Overall, the centralised kitchen produced food in a cleaner and more hygienic environment than in the decentralised kitchens. This is arguably the greatest advantage of centralising the operation. However, the temperature and therefore the safety of the food by the time it is consumed is a concerning issue and is an area for future research.

6.5 Preference

In Section 5.3.4, I showed that the type of food served in the MDMS can determine whether students consume the meal. Preference also features in the standard definition of food security. To explore preference further, students were asked what their favourite food served in school was. The most popular dish varied between schools (Table 6.15).

[6] Ideally, I would have measured the temperature of the food; however, the issue did not emerge as a problem until later in the research when it was too late.

Table 6.15: Student preference from the student survey

Meal	CS1	CS2	CS3	CS4	Total	
					Freq.	%
Rice, *dal*	7	54	3	5	69	22.1
Roti, dal	11	12	0	42	65	20.8
Khichdi and *kadhi*	0	0	0	28	28	9.0
Rice, *kadhi*	11	16	0	0	27	8.7
Khichdi	5	10	5	4	24	7.7
Roti, vegetables	0	13	4	3	20	6.4
Sweet rice	3	0	0	15	18	5.8
Dal dhokli	9	0	3	0	12	3.8
Rice	3	8	0	0	11	3.5
Other	17	5	0	16	38	12.2

In their essays, students described their food preferences. At CS1, CS2 and CS3 there were no clear trends in preference. One insightful student at CS2 wrote 'in our school, all children like different food, some like khichdi, some like *dal* rice'. At CS4, typically students wrote that they liked rice, vegetables and *dal* and did not like sweet rice. Preference influenced consumption. Students at CS2 and CS4 wrote that when food that they did not like was served, fewer children would consume the food. For example, a student in grade X at CS2 wrote: 'in our school, *dal* and rice is delicious food and on this day the school children eat the food. The bad food is roti and vegetables…On this day children from 10th class don't eat the food'. At CS4, students wrote that they did not eat the MDM on Saturdays when sweet rice was served. Some students even mentioned that when sweet rice is served, they go home.

Students also preferred food consumed infrequently at home, particularly sweets and fruit. For example, the interviewee from household 18 in CS3 stated that their child did not go to school very often, but when there is special food then they go, stating when children are given sweets on Independence Day and Republic Day 'children run towards school'. The link between attendance and the food served has also been found elsewhere. For example, the 2013 JRM for Andhra Pradesh noted that when 'interesting' food such as vegetable biryani was served, more children consumed the meal (MHRD, 2013b). Thus, children's tastes and preferences can influence whether they choose to consume the MDM. Evidently, children may exercise agency not only in the decision to attend school but also in the decision as to whether to eat the food served.

In Rajasthan, on one day each week the food served in the MDMS should deviate from the menu and food that reflects local tastes should be served. The extent to which local taste and preference influenced the food served varied. In the first round of school visits, staff at three schools (one, nine, and 16)

reported that they made *dal dhokli* frequently as the students liked the meal. However, typically it is not the most favoured meal. Rice, however, is liked by students but is not necessarily served that often. For example, at CS1 one student wrote: 'children like *kadhi* and rice and *dal* and rice, but there is less rice so because of this *kadhi* and rice and *dal* and rice are made very less'. In the centralised model, preference is not considered. Although the students at CS4 did not like sweet rice, the centralised nature of the provision means that the menu remains the same. Thus, week after week students will continue to not consume the meal when sweet rice is served. The extent to which preference and local taste is reflected in the food served is therefore influenced by whether the students can provide feedback and whether the duty-bearers have the capacity and will to alter the menu.

The previous discussion has therefore shown that preference is important in the MDMS, as it affects school attendance and consumption of the MDM. Evidently, the qualitative dimensions of food are important.

6.6 Culturally Appropriate?

The cultural appropriateness of the food served has been considered in the scheme's design; the MDM menu is created by state governments and in Rajasthan the menu can be adapted to local taste. Issues arise, however, when religiously-inclined NGOs are involved in the scheme. The centralised kitchen in the study area is operated by Akshaya Patra, an initiative of the International Society for Krishna Consciousness (ISKCON) known as the Hare Krishna movement (see Section 8.6). This movement adheres to a *Sattvic* diet, which excludes onion, garlic and all meat products including eggs. The MDM prepared by these organisations adheres to this diet. The students in the study area receiving the meal from the centralised kitchen did not complain about the absence of onions and garlic, although, media reports from elsewhere indicate that students may object to such food (Rangarajan, 2016; *The Pioneer,* 2016b). Notably, the Education Department of Chandigarh decided to reverse its decision to source the MDM from Akshaya Patra as the exclusion of onion and garlic, along with machine-made *roti*, were deemed unsuitable for the north Indian palate (Chhibber, 2017). Beyond taste, the exclusion of garlic and onion is evidently the projection of religious values onto others, as was argued by three expert interviewees (IN4, IN7, IA15).

Of greater concern is the exclusion of eggs from the MDMS. Eggs are not only nutritious, but also have a longer shelf life than alternatives such as milk (Khera, 2015). Entitlements are also easier to monitor (*ibid*); it is far easier for rights-holders and their representatives to determine whether rights-holders have received one egg than 30g of *dal*. Children have also been found to like eggs (MHRD, 2013c; 2013d; Mohanty, 2015; Sinha, 2016). The decision as to whether eggs appear on the MDM menu is

often not made according to nutritional need. Instead, the decision is often influenced by the religious beliefs of NGOs, politicians and other powerful actors (see BBC, 2015; DNA India, 2016; *Economic and Political Weekly*, 2015; Johari, 2015; Moudgal, 2015; *The Hindu,* 2016a; Tutika, 2016). As NGOs do not have to supply the MDM, enforcing the provision of eggs is difficult. For example, the Committee on the Welfare of SCs and STs (2013) reported that Akshaya Patra were not supplying eggs. In response, a representative from ISKCON stated 'As far as serving eggs is concerned, those demanding it are free to get them from elsewhere' (in Vishnoi, 2013).

In Rajasthan, eggs are not on the menu in the ICDS programme or the MDMS, reportedly due to the influence of lobbies and NGOs (Dutta, 2015; Johari, 2015) and concern for religious beliefs (Iqbal, 2014). Indeed, the majority of Rajasthan's population are vegetarian (Section 3.3.2). However, vegetarianism has a caste-based pattern. Nationally, 30.3% of men and 31.2% of women belonging to general castes are vegetarian, compared to 22.1% and 23.9% of SCs and 24.0% and 24.1% of STs (GOI, 2016d). In this study, 18.6% of the respondents in HS1 and 31.6% of those in HS2 were not vegetarian. Moreover, vegetarianism can be the product of circumstance rather than choice (Khera, 2015). Indeed, in HS3 when asked whether their child would eat eggs if they were provided in the MDMS, 117 people (86.9%) answered yes, of which 33 had previously identified themselves as vegetarian. Despite eggs being culturally appropriate for most respondents, none of these children will receive eggs.

NGOs involved in the MDMS 'should not use the programme for propagation of any religious practice' (MHRD, 2006: 17). The refusal to provide eggs, onion and garlic is, however, the propagation of a religious practice. Moreover, the CESCR defines cultural acceptability as the 'non-nutrient-based values attached to food and food consumption' (1999: paragraph 11). The involvement of NGOs in the MDMS does not lead to rights-holders being forced to consume food that is inappropriate. It does, however, lead to the prevention of the consumption of culturally acceptable (and nutritious) food. The refusal to provide eggs is the projection of the values attached to food held by a small number of duty-bearers onto rights-holders. Importantly, this is at the potential expense of the well-being of rights-holders. Moreover, it highlights that the choice of food served in the scheme is not necessarily made according to nutrition and the culture of those receiving the food, but instead may be determined by religion. Reflecting Fraser's work (Section 2.4.2), the system directing the MDMS may appear non-political; there are observed dietary needs which are fulfilled by a meal that is supposedly in line with the guidelines. However, the case of eggs highlights that this process can be highly political. Whilst there may be an underlying discourse that animal products are not necessary, ultimately the needs of rights-holders does not factor into this decision. Instead, the views and agendas of more powerful actors ensure that needs are not sufficiently discussed or addressed.

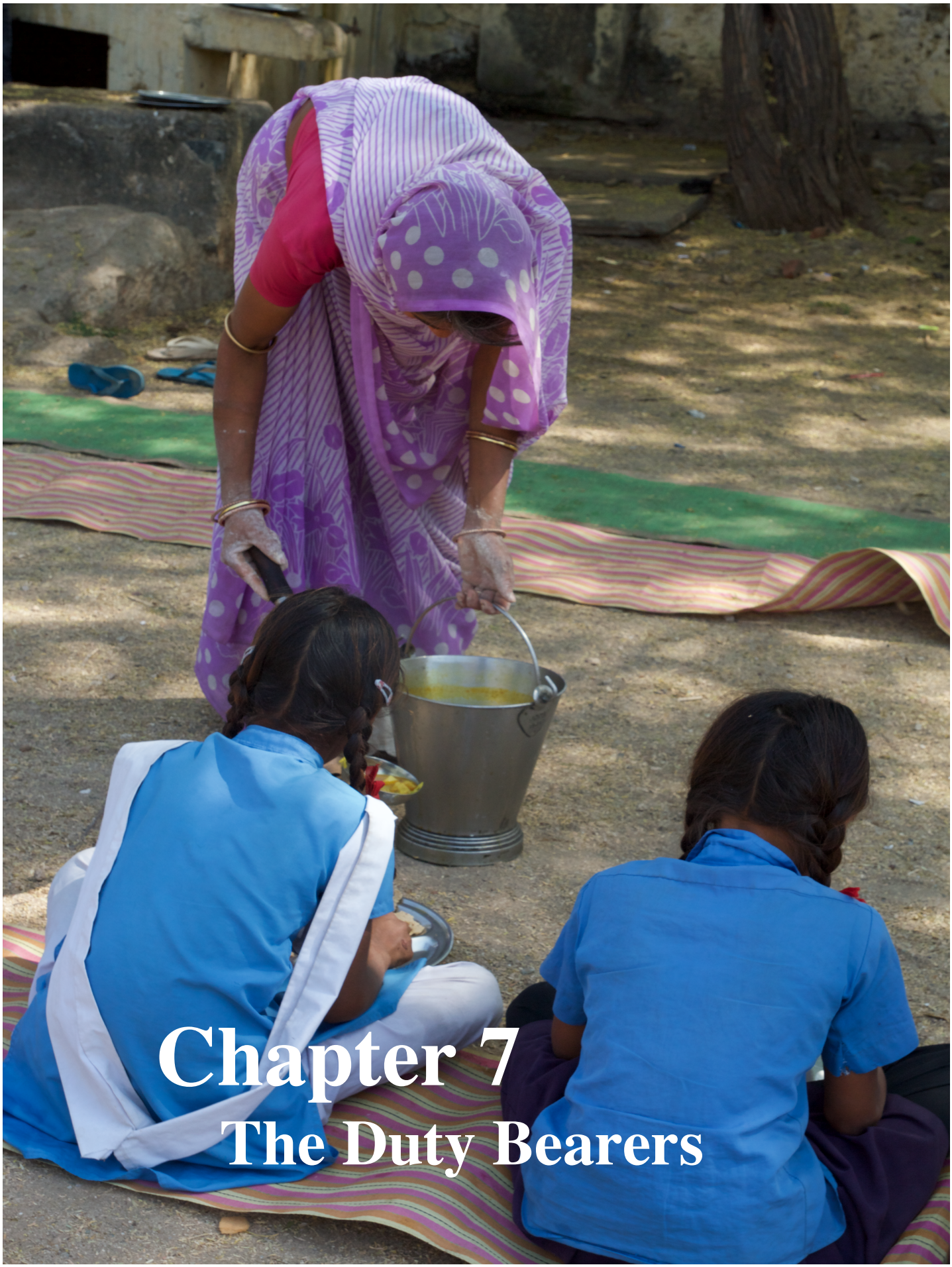
6.7 Conclusion

In sections 6.2.1-6.2.5, I have shown the inadequacies in the quantity, quality and safety of the MDM served in the study area. However, I have shown that these vary considerably over time, space and between children. These variations are a product of multiple factors: the failure of government officials to ensure adequate infrastructure; the limited capacity of duty-bearers at the school-level to fulfil their duties in the context of inadequate financial, food or human resources; and the agency and discretion of teachers and cooks. Notably, due to this variation and without thorough and frequent monitoring at the school-level, it is hard to determine whether rights-holders receive their entitlements and the extent to which nutritional needs are met.

Throughout this chapter, I have also shown flaws in the centralised delivery model. The centralised kitchen was not supplying food according to the menu or government norms. Although centralised kitchens may appear to be a more hygienic delivery model, the centralised model introduces a new safety concern: temperature. Finally, in Section 6.6 I argued that the involvement of NGOs in MDMS may result in the provision of food that is not in line with local culture.

The findings presented in this chapter have also shown the importance of the qualitative dimensions of food consumption. I have shown that quality and preference affect consumption and therefore the impact of the scheme. In this Chapter, I have repeatedly drawn on the words and opinions of students; the rights-holders themselves. I have shown that one can gain considerable insight into the implementation of the MDMS from students. The findings here, therefore support Kent's (2010) argument that the views of students need to be listened to in SFPs.

Two larger conclusions can be drawn from the findings presented in this chapter. Firstly, in its current form the MDMS is a missed opportunity. The MDM is an important part of children's food intake. However, the inadequate quantity and the failure to adhere to the norms reduces the nutritional value of the meal. Second, uncertainty in the MDMS extends beyond the number of rights-holders (Chapter 5) to the food served. The quantity of food received by each rights-holder is unknown, and therefore so too is the nutritional value of the MDM. The temperature and overall safety of the food is another unknown. In consequence, the provision of a safe MDM that adheres to norms cannot be guaranteed.



Chapter 7
The Duty Bearers

Chapter 7

The Duty Bearers

7.1 Introduction

Duty-bearers are the second part of a rights system (Kent, 2005). For the provision of entitlements and thus the realisation of rights, duty-bearers must fulfil their duties. Understanding the involvement of duty-bearers in a rights-based scheme is therefore imperative to comprehending why or why not entitlements are fulfilled. In Section 4.5, I outlined that the duty-bearers in the MDMS are the multiple layers of government and those responsible for directly implementing the scheme at the school-level. Studying both sets of actors would require extensive fieldwork in block offices and in schools. Given the time constraints of PhD fieldwork, I focussed on the latter. Furthermore, it is the duty-bearers at the school level that ultimately determine whether entitlements are provided, yet, the duties of these actors are rarely discussed. Typically, discussions of the administrative structure of the MDMS group these actors together, with little to no further exploration (e.g. Si and Sharma, 2008; Sikligar 2011). In particular, the involvement of NGOs in the form of PPPs has not been empirically examined (Section 2.5.4). In this chapter, I therefore focus on the duty-bearers responsible for providing the MDMS at the school-level. I examine who the duty-bearers are and the duties that they have. I also examine whether these duty-bearers have the capacity to fulfil their duties, what determines this capacity and what the implications are for the provision of entitlements. In turn, I examine the roles of SMCs, teachers, cooks, the community and NGOs.

7.2 School Management Committees

The GOR (2016a) report that a SMC has been established in every one of Rajasthan's schools. Indeed, all teachers in the sampled schools reported the existence of a SMC. Yet, SMCs were found to have a limited role in the MDMS in the study area. Only 16 teachers reported that the SMC had monitored

the MDMS in the past year. Only 26 teachers reported that SMCs met the required once a month; the remaining 17 reported a lower frequency (Table 7.1). Meetings were reported to occur most frequently in Girwa and the least frequently in Khamnor. At no point during the research did I observe a SMC meeting being held, indicating that the frequency of meetings may have been lower than reported.

Table 7.1: Frequency of SMC meetings

Frequency of meetings	**Girwa**	**Kotra**	**Khamnor**	**Kumbhalgarh.**	**Total**	
					Freq.	**%**
At least once per month	11	5	4	6	26	60.5
Once every two months	0	3	1	3	7	16.3
< six times per year	0	3	5	2	10	23.3

Only three respondents mentioned that they, or someone in their family, were on the SMC. Participants did not perceive the SMC as the institution to complain to if there was a problem with the MDMS; of the 430 people in HS1, only 18 (4.2%) reported that they would complain to the SMC (see Section 8.3.1).

Three NGO employees in Udaipur reported that SMCs in the district were not functioning effectively or, at times, at all (IN2, IN3, IN6). One stated that some people are unaware that they are listed as SMC members (IN3). This trend has been found elsewhere. For example, a study in Delhi found that only 10% of SMC members were aware of their membership (The Central Square Foundation and Accountability Initiative, 2014). Those that are on the SMC also do not necessarily fulfil their duties. For example, the Central Square Foundation (2015) noted that no School Development Plans were created by SMCs in Udaipur and Jaipur districts. The Central Square Foundation and Accountability Initiative therefore concluded that a key problem with SMCs is the 'gap between policy intent and on-the-ground implementation' (2015: 8).

SMCs have overall responsibility for the implementation of the MDMS at the school level (GOR, 2016a). Yet, I found SMCs had little involvement in the MDMS in the study area. Clearly, if a SMC is not functioning as intended, either the duties of the SMC are not fulfilled or they become the responsibility of another duty-bearer, most probably teachers.

7.3 Teachers

The MDMS is widely considered to place a 'burden' on teachers, diverting their attention away from teaching and consequently reducing the quality of education that students receive (e.g. Choudhari, 2013; Jain and Shah, 2005; *Times of India*, 2014). The MHRD explicitly addressed this in the 2006 guidelines stating:

> There persists a widely-held belief that provision of cooked meals disrupts classroom processes: that teachers spend too much time in supervising the cooking operations to the detriment of academic timetables. This has resulted in a general lack of enthusiasm for the programme in some States…Teachers should, therefore, under no circumstances, be assigned responsibilities that will impede or interfere with teaching learning [sic]. (24)

In the meeting of the Empowered Committee in October 2014, the Government of Bihar requested that the MDMS become centralised in Bihar to relieve teachers of their burden. The Additional Secretary of the MHRD replied that 'the role of teacher is to taste the meal and ensure that it is served by the cook-cum-helpers in an orderly manner. Thus, it does not put extra burden on the work of the teacher' (MHRD, 2014b). Following the review of the street-level bureaucrat literature in Chapter 2, one may predict that if too much is asked of teachers, their ability to perform their duties will be reduced. Given the potential influence on the implementation of the MDMS, in the following discussion, I examine the role of teachers in the MDMS in the sampled schools and whether the MDMS places a burden on them.

All the teachers interviewed stated that the MDMS was beneficial for students. The precise objectives and benefits of the scheme were not, however, consistently recognised. Twenty-three teachers (53.5%) listed that the objectives of the MDMS were to increase enrolment and attendance and to improve nutrition. Eleven thought that the scheme was for those not getting enough food at home, eight thought that the scheme was to improve health and six thought it was to avoid classroom hunger and to benefit poor children. Although teachers recognised that the scheme had positive objectives and benefited their students, many were against the involvement of teachers. Fourteen teachers thought that the scheme placed a burden on them and consequently reduced the time that they could spend teaching. Teachers also disliked the responsibility they had for the scheme, fearing blame if something went wrong (see Section 8.4). Six teachers consequently argued that the MDMS should be provided by a separate agency. For example, a teacher at school two stated that the MDMS 'is economically good for those families who can't afford the quality of food. But it is a burden for teachers. If there is management then it can make it better for children as teachers can concentrate on

education'. A district official in Rajsamand (IG6) also argued that another agency should provide the MDMS to relieve teachers of the burden. Three expert interviewees also stated that the burden placed on teachers as a problem (IA1, IA14, IO2). For example, a scholar researching the MDMS (IA14) argued that the burden resulted in teachers looking for shortcuts in the provision of the meal. These shortcuts can be interpreted as coping strategies, adopted in the context of work pressures.

Teachers have two duties towards the MDMS: to provide a wholesome meal and to do so in the spirit of togetherness (MHRD, 2006: 23). Yet, these duties are ends; they do not detail the means. In practice, ensuring the provision of a quality MDM involves considerable work. I observed teachers instructing the cook as to the food to prepare, ensuring there was sufficient fuel, overseeing the serving of food, supervising students and completing records on attendance, grain use and expenditure. Teachers must also purchase the raw ingredients and taste the meal. Many tasks must therefore be completed to ensure that the seemingly simple end of providing a wholesome meal is fulfilled. As noted elsewhere (Drèze and Goyal, 2003; Jain and Shah, 2005; Khera, 2006), completing these tasks takes time. The time taken is further increased by flaws in the scheme's functioning (Jain and Shah, 2005). For example, at CS1 the gas cylinder had not been replaced, requiring the teacher to spend time sourcing a new cylinder. Teachers may also face difficulties providing the MDM when the budget is delayed; 15 teachers reported delays and the teacher at school 17 reported that they had to pay for the scheme from their own money until the money was received, a trend noted to occur elsewhere in the MDMS (IO2). Those teachers that can and are willing to pay for the MDMS use their own money as a coping strategy to deal with the delayed receipt of funds.

The time teachers spent on the MDMS, however, varied between teachers and schools. One teacher at each school is appointed the 'Mid-day-meal in charge', meaning that teachers are not affected by the scheme to the same extent. A problem arises in single-teacher schools, where teachers must complete all the teaching, administrative tasks and MDM-related activities alone. Indeed, it is known that teachers in India are required to perform extensive and time-consuming administrative tasks, including the maintenance of numerous registers (Mooij, 2008). Six of the 14 teachers that complained about the burden of the MDMS were from schools where there were just one or two members of staff. In these schools, teachers already had a considerable amount of responsibility and could not manage to fulfil their duties. For example, the teacher at school 14 stated that 'In this school there is only one member of staff and I am busy in official work and so cannot give enough time to the students'. The MDM had not been served at school 14 for several weeks on our first visit and was served variably thereafter. The capacity of a teacher in a single-teacher school to provide the MDM, to educate and to perform administrative duties is therefore limited. This is a cause for concern as single-teacher schools are not uncommon; they account for 17.0% of government schools in Rajasthan, 16.4% in Rajsamand and 22.3% in Udaipur (NUEPA, 2016). Indeed, a district official in

Udaipur (IG8) noted that delivering the MDMS in single-teacher schools was a problem in the region. Single-teacher schools are also often in remote areas, making the provision of a MDM that adheres to the GOI's norms more difficult due to limited access to markets. Moreover, schools in remote areas are less likely to be inspected (IN6). Thus, the MDMS is often implemented poorly in single-teacher schools in remote areas. Indeed, five of the six schools not serving food at all or serving inadequate food were such schools.

The narrative that the MDMS creates a burden should not, however, be assumed. Teachers at three schools (six, seven, 33) mentioned that at least one teacher was engaged in MDM-related tasks for the duration of the day and thus could not teach. Although the duties teachers are obligated to perform are not insignificant, they do not take the entire day and therefore these reports appear to be exaggerated. Moreover, I observed that many teachers were engaged in neither teaching nor activities relating to the MDMS. Instead, teachers were observed chatting, drinking tea, reading the paper or leisurely completing records; a trend found more widely in India (Kremer *et al*. 2005; PROBE team, 1999 in Kingdon, 2007).

Teachers must also accept responsibility to provide the MDMS as per the norms. Implicit in this is that teachers do not act for their own personal gain. Corruption is defined here as 'behaviour that deviates from the formal duties of a public role (elective or appointive) because of private-regarding (personal, close family, private clique) wealth or status gains' (Nye, 1967: 419). Corruption by teachers in the MDMS typically takes the form of teachers either inflating enrolment and attendance figures or taking the dry food home (IO2, IA3, IA14). I have already shown in Section 5.3.2 that enrolment and attendance figures were sometimes inflated. Respondents in four locations mentioned that teachers took the food home (the catchment areas for schools five, six, 10, and 19). Expert interviewees (IA3, I02) also noted that there was corruption in the scheme, although emphasised that this was petty corruption, particularly relative to the PDS.

The personality of teachers also determines whether they fulfil their duties. Indeed, examples already presented in Chapter 5 show that the extent to which teachers felt a duty towards their students and the MDMS varied. For example, at CS2, the midday-meal-in-charge was providing food to older students as they had recognised that the students needed the MDM. At CS4, the head-teacher had personally tried to increase attendance and to prohibit discrimination. In contrast, at school 14 the teacher had stopped providing the MDM. School 15 was closed due to the absence of the teacher. At school 19 the teacher was inflating figures and nearly inedible food was also being served. In addition, at school 21 the teacher was reading the newspaper and no MDM was served. Notably, these four schools were all in Kotra. Parents recognised the influence of teachers' personality on the MDMS; some thought that teachers were 'good' and therefore the MDMS was good (mentioned by at least

one household in the catchment areas for schools 17, 20, 26, 30, 37). Others thought that the teachers were 'not good' (schools 31, 32, 43). Experts also noted the influence of teachers' personality and attitude (IA3, IA10, IA15, IO2). Teachers have agency to act (albeit within structural constraints); those who accept responsibility for the MDMS and their students and are motivated to act may use this agency to try to implement the scheme well. Those without such responsibility and motivation may put little to no effort into the implementation of the scheme.

Teachers in government schools in India are typically street-level bureaucrats; they 'interact with citizens in the course of the job and have discretion in exercising authority' but often 'cannot do the job according to ideal conceptions of the practice because of the limitations of the work structure' (Lipsky, 2010: xvii). The duties of teachers in the MDMS, combined with existing administrative and teaching duties, and limited access to financial and food resources, may limit the capacity of teachers to provide a MDM that adheres to norms. However, the demands and enablements of teachers vary spatially and by school; capacity to fulfil duties is especially limited for teachers in single-teacher schools. The fulfilment of duties by teachers is, however, not only the product of structure; teachers must accept responsibility to implement the MDMS as per the norms. Personality and personal motivation are critical factors in the acceptance of responsibility. If the monitoring of the scheme is insufficiently frequent, rigorous or effective and accountability is limited (see Chapter 8), the influence of personality and capacity persists, to the potential detriment of the scheme. Structural inequalities allow teachers to influence the implementation of the MDMS. Depending on the personality of the teachers, this 'room for manoeuvre' can positively, or as is more typical, negatively impact the scheme.

7.4 Cook-Cum-Helpers

7.4.1 Who are they?

In 2015-2016, 25.5 million CCHs were employed in the MDMS (MHRD, 2016i). Table 7.2 presents the gender and caste composition of the CCHs in Rajasthan. As shown, most CCHs are female. The expected preference for disadvantaged groups is less clear. The proportion of cooks belonging to SCs is lower than the percentage of SCs in the population (17.85%) and the proportion of STs employed is only slightly higher than in the population (13.5%) (GOI, 2011a). Most cooks belong to OBCs (54.2%). It is unknown whether this pattern is the result of discrimination towards cooks from SCs/STs. Discrimination towards cooks in the scheme has been found to exist (see Section 2.2.4). Indeed, I encountered caste-based discrimination towards a cook on one occasion; the mother at household four at school six reported that their child could not eat the MDM as the cook was from a ST and the family were Rajput (a higher caste).

Table 7.2: The employment of CCHs in Rajasthan (GOR, 2016b)

Caste	Male		Female		Total	
	Freq.	**%**	**Freq.**	**%**	**Freq.**	**%**
SC	1,079	9.3	10,558	90.7	11,637	10.1
ST	3,627	17.9	16,680	82.1	20,307	17.6
OBC	5,243	8.4	57,374	91.6	62,617	54.2
Minority	389	9.0	3,932	91.0	4,321	3.7
Others	1,661	9.9	15,079	90.1	16,740	14.5
Total	**11,999**	**10.4**	**103,623**	**89.6**	**115,622**	**100.0**

Table 7.3 presents the gender, caste and age of cooks included in the cook survey. Again, most cooks were female. A high proportion of STs were employed in the sampled schools, likely due to the higher proportion of STs in the study area (Section 3.2.4). The results show no preference by age, but importantly indicate that the MDMS can be a source of employment for older people, particularly women.

Table 7.3: The gender, caste and age of the cooks surveyed

		Number of CCHs
Gender	Male	3
	Female	29
Caste	ST	13
	SC	1
	OBC	10
	General	7
Age (years)	15-24	5
	25-34	7
	35-44	6
	45-54	7
	55-64	5
	65+	1

Of the 31 cooks interviewed, 17 stated that they had been selected as they needed the work. Of these, six specifically mentioned that they needed the work as they were widows. Another 10 answered that they were selected because they were a good cook. Of the 15 teachers who could provide a reason for the choice of the CCH, 11 stated it was due to the CCHs need (widow, poor or low-caste) and four

stated it was due to the CCH's ability. The preferential employment of the needy was therefore occurring in the study area; however, cooking ability was also considered.

7.4.2 Duties

CCHs are required to complete many tasks. Tasks observed or frequently referred to were: cleaning the cooking area, cleaning the grain, collecting firewood, preparing ingredients, cooking and serving the food and washing utensils. The cooks in 18 schools reported that they knew what to cook each day as they followed the government menu, whereas 11 were told what to cook by the teacher. Tasks took between four and six hours to complete and were required to be performed six days per week for 10 months of the year. The working conditions are often unpleasant; cooking on an open fire in an insufficiently ventilated kitchen in the midday heat. Indeed, on many occasions I had to stop observing the cooking process as the kitchen was unbearably hot.

The workload of CCHs is increased by flaws in the allocation and distribution of resources. Firstly, the duties of the cook are often greater than they can fulfil. As per the MDMS guidelines (MHRD, 2009), if there are 1-25 students enrolled in a school, the one CCH should be employed. Two CCHs should be employed at schools with 26-100 students, and an additional CCH should be employed for every additional 100 students. The small number of CCHs can make following the GOR's menu difficult. For example, in Rajasthan, CCHs are required to make *roti* and *dal* on a Tuesday and Friday. In a school with 25 students, the one CCH would be required to make between 50-75 *rotis*. It is impossible for the CCH to cook the *rotis* to ensure that they are fresh and simultaneously serve the food. Cooks are therefore forced to adjust the process. Adjustments I observed during the research were cooking fewer *rotis*, cooking larger *rotis*, cooking two *rotis* at the same time, serving cold *rotis* and not serving *rotis* at all, instead preferring dishes such as *dal dhokli* and *khichdi* (Section 6.2.1). A further tactic is to enlist the help of students. I observed children assisting with serving or serving the meal without adult help in 17 schools. (Figure 7.1). It is not only teachers who must use coping strategies to cope with the demands placed on them; CCHs must also establish routines and devices 'to cope with uncertainties and work pressures, [which] effectively *become* the public policies they carry out' (Lipsky, 2010: xiii).

Figure 7.1: Students serving the MDM at school 35, Kumbhalgarh block

Second, the workload of CCHs is often increased by the employment of fewer cooks than is necessary. The PAB approves the number of CCHs to be employed in each state. In Rajasthan, the number of engaged CCHs is lower than the approved number, i.e. there are not as many cooks as there should be per the number of students (Table 7.4). Noticeably, the number of engaged CCHs in 2014-2015 was used as the number of approved CCHs in 2015-2016, despite both the number of institutions and the number of enrolled students increasing between the two years (GOR, 2016b).

Table 7.4: Number of CCHs in Rajasthan and the study districts
(GOR, 2015a; GOR, 2016b)

Year	Number of CCHs	Rajasthan	Rajsamand	Udaipur
2014-2015	Approved	136,009	2,334	9,114
	Engaged	119,071	2,427	6,814
	Approved-Engaged	16,938	-93	2,300
	Percentage Engaged	87.5	104.0	74.8
2015-2016	Approved	119,071	2,417	6,814
	Engaged	115,622	2,427	6,712
	Approved-Engaged	3,449	-10	102
	Percentage Engaged	97.1	100.4	98.5

In total, eight of 33 sampled schools (23.5%) had the correct number of CCHs; the remaining had fewer.[1] The inadequate employment of cooks against the approved number also occurs elsewhere, for example, it is mentioned in the JRM reports for Assam (MHRD, 2013h), Bihar (MHRD, 2013b), Delhi (MHRD 2013c), Jammu and Kashmir (MHRD, 2012a), Madhya Pradesh (MHRD, 2013d) and Odisha (MHRD, 2012b) and in the 2016 PAB Appraisals for 18 states/UTs. In the reports, no explanation is offered for the difference between the number of approved and engaged CCHs; it is unclear whether SMCs/teachers have not tried to employ the required number of CCHs or that they have been unable to. Inadequate human resources add to the demands being placed on CCHs and the necessity for them to use coping strategies.

Thirdly, inadequate infrastructure at the school level further increases the workload of CCHs. For example, if firewood is used, then CCHs typically must collect it. If there is no on-site drinking water (Section 6.4.2), the CCH must collect water from elsewhere.

Fourthly, although all CCHs identified someone that could replace them if they were ill (typically a female relative) this did not necessarily occur in practice. No food was served at school 12 when the cooks did not attend. A replacement CCH was not provided at CS1 when the cook was absent. Instead, the older female children prepared the food (Figure 7.2). Essays show that the incident was not a one off. For example, a female student in grade VII wrote: 'sometimes the cook does not come, so we have to make food'. A younger male student in grade V wrote: 'our cook sometimes doesn't come to school to make food and our older 'sisters' make food'. The absence of a cook leading to irregularity has been noted elsewhere, for example by the Secretary for SE&L (MHRD, 2015a).

[1] Full details are provided in Appendix F.1.

Figure 7.2: Students become CCHs at CS1. The older female students sitting in the kitchen, eating the *khichdi* they had prepared due to the absence of the CCH.

Finally, CCHs are often expected to perform their duties without sufficient training. The GOR (2016b) reports that 8,000 CCHs in Rajasthan have not been trained. Moreover, the GOR does not discuss the frequency of training. The turnover rate of CCHs can be high; six of the 31 CCHs interviewed in this study had been employed for less than one year. It was therefore unlikely that all CCHs had been trained. No cook mentioned having received training. Perhaps consequently, cooks

often did not know the purpose of the MDMS; nine stated that the purpose of the scheme was to give the children food and 10 did not know the purpose. Only seven cooks identified at least one objective, including increasing enrolment, removing classroom hunger and improving health.

7.4.3 Payment and Benefits

The MDMS is an important source of employment, particularly for women and the needy. Yet, the payment that CCHs receive is small. The GOI does not perceive CCHs to be government employees and therefore they do not receive the generous salary associated with government jobs. In Rajasthan, CCHs receive the minimum monthly honorarium of INR 1,000, approximately INR 40 per working day. The cook at school 35 was paid less (INR 900) as the teacher deducted INR 100 because the grain was cleaned elsewhere. The wage for CCHs is thus far lower than the minimum wage in Rajasthan (INR 197) and the wages of those employed under the MGNREGA (INR 181) (*The Indian Express,* 2016d). Moreover, CCHs do not receive any of the additional benefits associated with government jobs, such as a pension, medical insurance and maternity benefits.

In Section 7.4.1, I showed that some of society's most marginalised are employed as CCHs. The payment they receive, however, is insufficient to ensure their well-being, including food security. The situation of the cooks at CS2 highlights this all too clearly. The respondents at household two and 20 were both cooks at the school. The first lived with her husband and three children, belonged to a SC and was illiterate. She had a monthly household income of INR 6,000. The household was mildly food insecure at the time of HS2; she rarely experienced anxiety about food but sometimes ate food she did not want to. The second was a 35-year-old mother of six. She belonged to a ST, was illiterate and had a monthly income of INR 9,000. Her household was severely food insecure. The third cook was a 75-year-old man who lived with his wife and was the breadwinner. Although not sampled in the household survey, we conducted the HFIAS with him and found that his household was severely food insecure. A greater wage would surely go some way to ensuring stable access to food for these cooks, thereby reducing their food insecurity.

Payment is particularly insufficient for widows, for whom the honorarium is the main source of income. Several of the cooks in the sample were widows and articulated the struggle they faced due to their low wage. On one occasion at CS2, I was stopped by three women walking past who were CCHs at the school in the next village. After hearing I was researching the scheme, they proceeded to tell me that the salary was too small to live on. One woman explained that she was a widow and had to raise two children on the INR 1,000 salary and an often-late INR 500 from her state widow

pension. There was an overwhelming consensus among cooks, teachers and experts that the payment to CCHs was insufficient, particularly relative to their workload.

Low payment also affects the scheme's implementation. Teachers at schools two, three and 17 reported that due to the low payment, they found finding a permanent cook difficult. The payment also affected the attitude and motivation of some cooks. For example, the cook at school two was a widow. In the context of the low payment, she considered her responsibility to be to only prepare the food. Therefore, once the food was cooked she went home, leaving students to serve the meal. The economic situation of the cooks, not helped by the low wage, can also lead to cooks taking raw or left-over food home. This was reported to occur at schools one, five, six, seven and 22. This constitutes corruption and has the potential to reduce the quantity of food that rights-holders receive. However, this corruption must be understood as the exercise of agency in the context of wider structures, namely inadequate pay and connected to this, unmet food needs at home.

Not only is the payment for CCHs insufficient, it is often delayed. Twenty-five of the 31 cooks surveyed reported that their payment was delayed by several months. The block monitoring reports, showed that payment was delayed in 73 of 107 schools (68.2%) in Girwa and 16 of 43 schools (37.2%) in Kumbhalgarh. Delays in payments to CCHs have been found elsewhere in Rajasthan (GOR, 2016a; Institute of Development Studies Jaipur, 2014) and across India, for example in Andhra Pradesh (MHRD, 2016a), Chhattisgarh (MHRD, 2016b), Gujarat (MHRD, 2016c), Karnataka (MHRD, 2016e) and Uttar Pradesh (MHRD, 2016h). Payments are typically delayed by three to six months. Several interviewees (IG4, IO1, IO2, IA1) including an official at the state level attributed the problem to delays in the flow of funds from the district and block level. Contrary to guidelines, in Rajasthan CCHs are paid in cash rather than by bank transfer, which delays payment further.

The Empowered Committee discussed the low payment to CCHs in their 2014 meetings. In the February meeting, the Education Minister of Bihar stated that the payment of INR 1000 is 'very meagre' and should be 'at least on par with [the] Minimum Wages Act' (MHRD, 2014b: 2). In response, the Minister of State for HRD, Dr Shashi Tharoor 'clarified that cook-cum-helpers are engaged on a part-time basis in the schools. Therefore, they are not covered under the Minimum Wages Act' (*ibid*). The issue was raised again in the October meeting. The Director of the MDMS reported that states were requesting the GOI to increase the minimum payment. The now former minister for HRD, Smriti Zubin Irani suggested that states increase the payment from their own resources (MHRD, 2014b). The low payment to CCHs can therefore be seen to stem from the GOI's view that the work is part-time and that any increase in wages is the responsibility of state governments. Arguably, however, in the words of one interviewee (IA15), there is 'something else at play'; patriarchal thinking that these women are 'otherwise unemployable', are 'cheap labour' and

that they should be 'happy with what they have got' (IA15). Indeed, when I asked a district official in Rajsamand whether the loss of the employment for CCHs in the centralised model was a problem (see Section 7.6.4), he replied that the 'employment doesn't matter much' as they are only getting INR 33 which is even less than NREGA' (IG2). The official was evidently unaware of the importance of the employment that the MDMS generates.

Poor payment is not only found in the MDMS. Gupta (2012), in his analysis of the ICDS and *Mahila Samakhya*[2], wrote that 'it is cruelly ironic that, by not paying these women a living wage, the state perpetuated the structural violence that it was employing these women to help their sisters overcome' (272). The same conclusion can be reached for the MDMS. Preference in the employment as CCHs is given to poor and disadvantaged women, on the implicit assumption that employment would improve their economic situation. Yet, CCHs in Rajasthan are not paid enough to ensure that these benefits occur. Ironically, CCHs are not paid enough to ensure their food security.

The inadequacy of training is also not confined to the MDMS. One interviewee (IA15) commented how in the ICDS scheme women do not receive sufficient training as it is assumed they know how to care for children. Palriwala and Neetha (2009; 2010; 2011) argued that the refusal to recognise *anganwadi* workers as regular government employees stems not only from a neoliberal drive to minimise costs and a failure to address the causes of malnutrition, but also from a 'gendered familialism'; care is seen as familial and female and is therefore devalued and diminished. This can clearly be extended to the MDMS; women are expected to know how to cook and are therefore inadequately trained and paid. The Mid Day Meal Workers' Federation of India argue that 'cooking, child care and health care' are all perceived as women's work which is done for free at home and thus 'these schemes are an extension of these social concepts used for exploitation' (2015:11). Employment in the MDMS is expected to empower, but the conditions of employment ultimately prevent such empowerment.

Overall, CCHs in the MDMS occupy an ambiguous position. CCHs are paid by the government to implement a government scheme. Although CCHs 'interact with citizens', and 'cannot do the job according to ideal conceptions of the practice', they typically lack the third component of Lipksy's definition of street-level bureaucrats, 'discretion in exercising authority' (2010: xvii). The food to be cooked and the activities to be performed are typically decided by teachers, not cooks. The payment to cooks is also inadequate and often late, which affects the implementation of the MDMS and the well-being of cooks. Overall, CCHs have arguably the greatest influence on the food served, yet are undervalued and under-paid.

[2] A scheme that uses education as a tool for female empowerment.

7.5 The Community

The GOI emphasise the need for community involvement in the MDMS (Section 4.6.5). Experts also noted the value of community involvement (IA1, IA3, IA6, IN7). In the study area, however, there was no formal means through which the community could be involved in the MDMS. Therefore unsurprisingly, I found minimal community involvement in the scheme. In 25 schools, teachers reported that parents sometimes asked about the meal. However, only two households reported that they were involved in the scheme: the respondent at household nine at school eight reported that they tasted the food once a month as they were a member of the SMC and the respondent at household one at school 26 reported that the teacher frequently called them to taste the food, because their house was close to the school. Other households reported that they only when to school when asked to by the teachers or on special occasions. At no point during the research did we observe a parent at school monitoring the MDMS. Even the GOR's own data indicates minimal community involvement. According to the GOR (2016b), the community tasted the food in just 10 schools in Udaipur district and in no schools in Rajsamand District. The additional form of community involvement, *Utsav Bhoj Yojana* was not observed during the fieldwork and were not mentioned by anyone.

Qualitative data highlights several reasons why parents are not more closely involved in the MDMS. Firstly, participants did not perceive themselves to have the power to visit the school and monitor the MDMS. For example, the first interviewee at CS1 stated that she had never been to investigate the food as 'I am a low caste woman and people will say I have no right. People will object'. Parents felt that due to their position they could not approach the school to taste the food (see Section 8.3.2). This can be interpreted as 'invisible power' (Gaventa 1980; 2003; VeneKlasen and Miller, 2002), which affects people's perceived place and relative superiority and inferiority. Secondly, there are practical barriers to involvement. Some parents could not visit their child's school due to work commitments and others did not visit the school as it was a considerable distance away. Thirdly, beyond the SMC there was no formal means such as a rota to organise community involvement. The capacity of the community to become involved in the MDMS is particularly restricted in the centralised model (Section 8.3).

The theoretical duties of the 'community' in the MDMS therefore do not reflect their capacity to become involved in the MDMS. Parents, particularly women, are assumed to have the time, ability, desire and power to be involved in the scheme. In the study area, this was not the case, resulting in minimal parental involvement. Using the HRBAP, one can view the community as not having either the sufficient authority or organisational resources to be involved in the scheme.

7.6 NGOs

7.6.1 Who are they?

PPPs in the MDMS are typically considered to be a success (Section 2.5.4) and the MHRD (2016h) considers Rajasthan to be the exemplary implementer. Yet, the number of kitchens in Rajasthan has decreased over time as NGOs have been asked to cease operations due to their inadequate MDM provision. Between 2009 and 2016, the number of kitchens in Rajasthan decreased from 25 to 11 (Table 7.5). The number of schools covered by centralised kitchens decreased by 67.3% in this period and the number of students decreased by 69.7%.

Table 7.5: The number of centralised kitchens in Rajasthan and their coverage (data from GOR, 2009; 2010; 2011; 2012; 2013a; 2014; 2015a).

Year	Kitchens	NGOs	Schools	Students
2009-10	25	11	8,017	Not stated
2010-11	22	7	7,800	Almost 700,000
2011-12	20	Not stated	7,961	732,289
2012-2013	20	7	8,284	745,568
2013-2014	21	5	8,344	668,921
2014-2015	6	4	3,064	211,855
2015-2016	6	4	2,623	221,619

By the end of 2013, eight organisations had stopped providing the MDM in Rajasthan. The largest of these was the Naandi Foundation. The Foundation signed a MOU with the Government of Rajasthan in October 2005 (Naandi Foundation, n.d.) and by 2013 were running 15 kitchens in the state, including three in Udaipur district. The kitchen in Girwa closed in December 2013 following a series of complaints about the quality of food. Teachers at the schools in Girwa confirmed that the food was improperly cooked and unclean. Media reports indicate a similar series of events happened elsewhere in Rajasthan (e.g. Sivakumar, 2012; *The Hindu*, 2013).

In 2017, there are four NGOs running six kitchens in Rajasthan; Akshaya Patra run three and the Q.R.G Foundation, Adamya Chetana and ISKCON run one each (Table 7.6). Akshaya Patra also have a decentralised kitchen in Baran district, where SHGs supply the MDM under Akshaya Patra's guidance (Akshaya Patra, 2017).

Table 7.6: Centralised kitchens in Rajasthan (GOR, 2016b)

District	Location	NGO	Schools	Students
Alwar	Alwar	QRG Foundation	407	50,000
Jaipur	Mansrovar (Jaipur)	ISKCON	425	23,769
	Jagatpura (Jaipur)	Akshaya Patra	1,004	91,976
Jodhpur	Jodhpur	Adamya Chetana Trust	210	17,130
	Jodhpur	Akshaya Patra	138	10,384
Rajsamand	Nathdwara	Akshaya Patra	439	28,360
		Total	**2,623**	**221,619**

As the involvement of NGOs in the MDMS has received little scholarly attention (Section 2.5.4), it is necessary to explore who the NGOs involved in the scheme in Rajasthan are. The QRG Foundation is an initiative of the electrical firm Havells and is a direct corporate social responsibility initiative. Further information about the initiative is not publically available.

Shri Ananth Kumar, a member of the BJP and a parliamentary minister, started Adamya Chetana in 1998. The organisation's vision is Swami Vivekananda's words: 'Each soul is potentially divine. The goal of humanity is to realize this divinity' (Adamya Chetana, 2017b). The organisation's mission is 'to create sustainable, replicable models for social betterment of the under privilege' and 'to develop a sense of appreciation of the Indian culture and value system among the younger generation' (*ibid*). The organisation currently supplies the MDM in three locations in Karnataka and in Jodhpur in Rajasthan under their *Annapoorna* programme (Adamya Chetana, 2017a). '*Anna'* means food and '*poorna'* means complete or full. In Hindu mythology, Annapoorna is the goddess of nourishment. Again, little information is publically available about the scheme.

ISKCON started the ISKCON Food Relief Foundation in 2004. They provide the MDM under the *Annamrita* programme, which means 'food as pure as nectar' (ISKCON, 2015). The organisation currently has 20 kitchens in eight states/UTs. The programme is guided by the idea 'that the intake of food not only grants man his material survival, but also offers him values of culture and of partaking in the divine, for which he strives in his innermost self' (*ibid*). Akshaya Patra is an initiative of ISKCON and is the largest supplier of the MDMS in India. The organisation began supplying the MDM in 2000 and now supplies food to 1.6 million children across 11 states (Akshaya Patra, 2017a). Akshaya Patra and ISKCON share the same story of origin:

> His Divine Grace A. C. Bhaktivedanta Swami Prabhupada, saw a group of children fighting with stray dogs over scraps of food. From this simple, yet heart-breaking

> incident, was born a determination that no child within a radius of ten miles from our centre should go hungry. (*ibid*)

Akshaya Patra's vision is that 'no child in India shall be deprived of education because of hunger' (Akshaya Patra, 2016d). Their mission is 'to feed 5 million by 2020' (*ibid*).

The MDMS' objectives are also inconsistently recognised by NGOs. Akshaya Patra and ISKCON list increased enrolment as one of the scheme's objectives (Akshaya Patra, 2017b; Akshaya Patra UK, 2017; ISKCON, 2015). Akshaya Patra UK (2017) also perceive the MDMS as a means of addressing child labour, an objective not mentioned in policy. Furthermore, NGOs do not discuss the solution to these problems as the MDMS *per se*, but rather the MDMS provided by the NGOs. To illustrate, Akshaya Patra UK (2017) quote a physician who states: 'I used to treat lots of children who would faint at the schools. But today, it has reduced. This is primarily because the children are receiving basic nutrition through the Akshaya Patra midday meals'. Akshaya Patra state: 'Our Food For Education Programme has made a huge difference to the lives of many thousands of children' (Akshaya Patra, 2017a). They also quote a technical consultant who states 'Akshaya Patra is doing a yeoman's job by feeding nutritious food to more than 1.6 million children' (*ibid*). Akshaya Patra is therefore presented as providing a service that would not be provided otherwise. Akshaya Patra also state that 'State Governments partner with NGOs like The Akshaya Patra Foundation… to increase the number of children they reach out to' (*ibid*), implying (incorrectly) that Akshaya Patra have increased the coverage of the MDMS.

Examining the NGOs involved in the MDMS in Rajasthan highlights two further trends worth noting. First, little information can be found about the two smaller organisations/ As mentioned in Section 3.3.9, I also found a paucity of information on the NGOs in the MDMS in Delhi. There is an evident lack of transparency regarding the involvement of NGOs in the MDMS. Second, three of the NGOs providing the MDM in Rajasthan have religious ties; ISKCON and Akshaya Patra stem directly from a religious movement and, as indicated in their mission statement, Adamya Chetana is clearly inspired by religious/spiritual concerns.

Akshaya Patra is the largest MDM supplier in India and operates in the study area, supplying meals from a centralised kitchen in Nathdwara in Khamnor block. Thus, in the subsequent discussion, I focus on Akshaya Patra.

7.6.2 Finances

NGOs supplement central and state government funding with money received from tax-free donations. In Table 7.7, I present the income, expenditure and assets of Akshaya Patra from 2008-2016. The scale of operations is clear; in 2015-2016, the organisation had a total income of INR 2,370 million. Of this, 62.3% came from the national and state governments, 30.3% came from donations, 5.5% came from non-cash income donations for fixed assets and 1.9% was from 'other income'. There was a surplus of INR 38.5 million. Notably, NGOs are not supposed to make a profit from the MDMS (Section 4.6.3).

Table 7.7: Income, expenditure, surplus and assets of Akshaya Patra from 2008-2015 in INR Millions (data from Akshaya Patra Annual Reports, 2009-2016)

Financial Year	**Total Income**	**Total Expenditure**	**Surplus/ Deficit**	**Cumulative Assets**
2008-2009	723.40	599.20	124.20	654.59
2009-2010	892.66	7,68.02	124.64	820.74
2010-2011	1,248.68	1,092.96	155.72	998.28
2011-2012	1,362.62	1,342.05	20.57	1142.31
2012-2013	1,588.81	1,734.73	-145.91	1,367.40
2013-2014	1,893.91	1,948,95	-55.03	1,670.76
2014-2015	2,370.48	2,331.98	38.50	2,020.99
2015-2016	2,956.33	2,527.06	168.26	*Not stated*

Table 7.8 details the nature of the donations received in 2013-2014 and 2014-2015. As shown, Akshaya Patra receives sizable donations from abroad, particularly from the US and the UK.

Table 7.8: Donations received by Akshaya Patra in INR Million (Akshaya Patra, 2014a; 2015)

	Donations	Amount received	
		2013-2014	**2014-2015**
Purpose of donations	Donations for feeding	605.88	829.56
	For fixed assets	262.63	273.72
	Trust fund receipts	199.50	367.05
	Total income from donations	**1,068.02**	**1,470.34**
Type of donations	Fixed assets -kind	2.71	2.71
	Fixed assets -cash	57.77	127.74
	Feeding- in kind	19.91	21.14
	Feeding-cash	533.27	697.26
In-kind donations	Fixed assets	2.71	2.71
	Provision and groceries	8.05	13.42
	Services	11.86	7.72
	Total	**22.62**	**23.91**
Source of Donations	Donations in India	446.39	278.43
	Donations elsewhere	213.88	234.86
	Donations in kind	21.14	19.91
	Other donations	36.98	19.96

The cost of the MDM supplied by Akshaya Patra and source of income are presented in Table 7.9.

Table 7.9: Cost of the MDM supplied by Akshaya Patra in INR (Akshaya Patra, 2016c; 2017b)

	2015-2016	**2016-2017**
Government contribution	4.38	6.10
Akshaya Patra Contribution	3.01[3]	4.09
Total	7.40	10.19
Suggested annual contribution per child	750	950

Typically, PPPs are advocated as the private sector is considered capable of delivering the same service for less money or a better service for the same amount of money (Grimsey and Lewis, 2005). Yet, the involvement of NGOs in the MDMS presents the same costs for the GOI and state governments. The total cost of the MDM provided by NGOs is greater than in the decentralised

[3] Obviously 4.38 and 3.01 totals 7.39, not 7.40; however, these are the figures given by Akshaya Patra.

model. NGOs face additional costs for infrastructure, transportation, management, administration and fundraising. Of Akshaya Patra's current daily budget per child (Table 7.9), INR 0.51 is spent on fundraising, equivalent to 5% of the total budget and 12.5% of Akshaya Patra's contribution. A further INR 0.34 is spent on administrative costs, equal to 3.3% of the total budget and 8.3% of Akshaya Patra's contribution. Therefore, 20.8% of Akshaya Patra's financial contribution is spent on sustaining the involvement of the NGO. Moreover, as I have shown in Chapter 6, the centralised model does not necessarily offer a better service than the decentralised model.

Donations to SFPs, both financial and in-kind, are not unheard off (see Drake *et al*., 2016). Akshaya Patra's funding is, however, unusual as the donations are to an NGO rather than a government. Akshaya Patra also rely on donations from corporations and individuals rather than governments or international institutions. The reliance on donations raises questions about the initiative's sustainability as the continued ability to provide the MDM relies on donations.

In addition to the above, there are several problems with the involvement of centralised kitchens which are now discussed in turn.

7.6.3 Rural Areas

NGOs should only provide the MDM in urban areas (Section 4.6.3); however, Akshaya Patra were supplying all schools in Khamnor. Of the 395 government schools in the block, only 20 are in urban areas (NUEPA, 2016). Akshaya Patra are therefore serving the meal to 375 rural schools directly violating the NFSA, the MDM Rules and thus the law. NGOs have been found supplying the MDMS in rural areas elsewhere. For example, both Akshaya Patra and ISKCON have been found to operate in rural areas in Andhra Pradesh (MHRD, 2010b; 2013h). The issue was noted in 2010 and 2013, indicating that no action was taken to correct the deviation from the guidelines. Evidently an effective accountability mechanism was not in place. NGOs supplying MDMs to rural areas is concerning for three reasons. Firstly, transporting the food from urban to rural locations increases the amount of time between food preparation and consumption. The schools do not have a thermometer and have no way of knowing whether the food has been kept at a safe temperature (see Section 6.4.3). Secondly, when the MDMS is supplied from an urban location, there is no interaction between the representatives of rights-holders and the NGOs. Although carrying out a service for the government, the employees of NGOs are not street-level bureaucrats as they do not interact with citizens. The interaction between those supplying and consuming the food is therefore removed in the centralised model. Transparency and accountability in the scheme therefore become limited. Finally, the supply to rural areas has implications for local employment, which are now discussed.

7.6.4 Changes in Duty-bearers

The involvement of NGOs in the MDMS alters the actual and perceived obligations of other duty-bearers. When the MDM is supplied by a NGO, CCHs should still be employed to serve the meal (Section 4.6.2). In Rajasthan, centralised kitchens have not employed CCHs to serve the food (GOR, 2016a). The duty therefore must be taken on by another actor. This obligation fell on the students in nine of the 10 schools (Figure 7.3). When children serve the MDM alone, they must lift heavy containers and eat their lunch last.

Figure 7.3: Children serving the food provided by the centralised kitchens. Top left: school 24. Bottom left: school 27. Bottom right: school 23. At the edge of the photo, teachers can be seen to be observing but not serving the MDM.

Furthermore, due to the mechanised nature of centralised kitchens, fewer people are employed. In total, Akshaya Patra employ 3,598 people at centralised kitchens and a further 1,538 in SHGs (Akshaya Patra 2015). Therefore, 5,136 people were employed to feed 1,436,596 children in 10,872 schools (*ibid*). Under the decentralised model, there would be at least one cook in each school which would create a minimum of 10,872 jobs.[4]

NGOs also do not preferentially employ women (Table 7.10). When SHGs are excluded, just 16.8% of Akshaya Patra's employees are female. The same trend is also apparent in ISKCON's employment figures. In 2013-2014, 266 of the total 1,327 employees (20%) were female (ISKCON, 2014). Several expert interviewees cited the loss of employment for women as a problem with the centralised model (IO1, IO3, IA3, IA7, IA15, IN7). One interviewee summarised the situation: 'The employment of local women is lost in centralised kitchens. These women are often marginal, as others would not take the low wages. There are no alternative sources of employment for these women in rural areas' (IA3).

Table 7.10: Akshaya Patra employees by salary and gender for 2014-2015 (Akshaya Patra, 2015)

		Male		**Female**		**Total**	
		Freq.	**%**	**Freq.**	**%**	**Freq.**	**%**
Salary (INR)	0-5,000	368	95.3	18	4.7	386	10.7
	5,001-10,000	2,099	81.9	465	18.1	2,564	71.3
	10,001-25,000	446	91.8	40	8.2	486	13.5
	25,001-50,000	84	78.5	23	21.5	107	3.0
	50,001-100,000	25	71.4	10	28.6	35	1.0
	100,001+	18	90.0	2	10.0	20	0.6
	Total	**3,040**	**84.5**	**558**	**15.5**	**3,598**	**100**
Type of employ-ment	Regular Staff	859	86.9	130	13.1	989	15.8
	Regular Workmen	2213	79.5	570	20.5	2783	44.5
	Contract	844	90.5	89	9.5	933	14.9
	Consultants	10	76.9	3	23.1	13	0.2
	Self-help groups	43	2.8	1495	97.2	1538	24.6
	Total	**3969**	**63.4**	**2287**	**36.6**	**6256**	**100.0**

Centralised kitchens also alter the spatial distribution of employment. In the decentralised model, at least one person is employed in every location where there is a school. In the centralised model, employees come from the urban or peri-urban area surrounding the kitchen. The spatial pattern of

[4] As most schools have more than one cook, the figure would be far higher but this cannot be calculated without enrolment data.

employment shifts, to the detriment of the needy in rural locations. In Khamnor, we encountered two women who used to be employed as cooks at the school before Akshaya Patra began delivering the food (schools 28 and 30). Both women expressed their disappointment that their employment as CCHs had ended.

When NGOs supply the MDM, teachers no longer need to procure ingredients and oversee cooking; hence teachers' enthusiasm for centralised kitchens (Section 7.2). However, teachers are still obliged to fulfil their duties. Observation showed that teachers did not taste the food. In the absence of other responsibilities for the MDMS, this cannot be interpreted as a lack of capacity, but rather a product of agency. In fact, in Khamnor, typically teachers did not examine the food at all and students were required to serve the meal. If something were wrong with the food, it would require the children serving to notice, inform the teacher and the teacher to act before the children consumed the food. Although children were also observed to serve the meal in the decentralised model, the key difference is the absence of any adult involvement in schools in the centralised model.

The involvement of NGOs can also reduce accountability**,** both from officials and from the community. Officials typically considered the food served by the centralised kitchen to be good. A district official in Rajsamand stated: 'All troubles would be gone if centralised kitchens provided the food to all blocks' (IG6). He went on to state that if the NGO would provide the MDM, then they could just give the money to the NGO. The official dismissed all the problems raised with NGO involvement (the lack of fruit, the provision to rural areas and the loss of employment) concluding that the 'centralised kitchen is the best way'. A less senior official expressed a similar opinion; 'Akshaya Patra make good food' (IG7). He noted that 'all schools in Khamnor have a kitchen shed, but then Akshaya Patra decided to make it' and that there are no complaints about the MDM in the district. Officials had therefore entrusted the provision of the food to the NGO and assumed that it was universally good.

The capacity for community involvement in the MDMS is further restricted in the centralised model. There is no mechanism for parents to interact with NGOs, and as will be shown in Section 8.4.3, most parents in Khamnor could not name the organisation providing the meal. One interviewee (IA6) argued that people 'should get fresh food, that is monitored by the community. Not food that is just dropped in… with no information on quality etcetera'. Another interviewee went further, stating that the scheme should 'belong to [the] beneficiary community' and therefore the involvement of organisations such as Akshaya Patra was a 'ridiculous approach' (IA11). The lack of community involvement in the centralised model has also been recognised elsewhere, such as in the 2013 JRM reports for Andhra Pradesh (MHRD, 2013a) and Bihar (MHRD, 2013b) and by Sinha (2008). There is thus evident tension

in the GOI's emphasis on the importance of community participation and their support for the use of centralised kitchens (e.g. in MHRD, 2010b).

7.6.5 From Charity to Rights and Back Again

The involvement of NGOs in the MDMS has implications for how the scheme is perceived. Within a RBA, development is no longer perceived as an act of charity, but as the fulfilment of rights. When the MDM is cooked by CCHs or SHGs, the meal is not charity; schools and SHGs have the duty to supply the meal and the state and national government have a duty to fund it. The involvement of NGOs, however, reintroduces charity. NGOs including Akshaya Patra rely heavily on charitable donations (Section 7.6.2) and undertake extensive campaigns to raise money from the public, both in India and internationally.

Often these donations are linked to private companies. For example, the Indian coffee chain Café Coffee Day partnered with Akshaya Patra. Customers had the option to add INR 1 to their bill, to be spent on providing cookies to children 'to make a school day sweeter' (Akshaya Patra 2014b; personal observation). In Bangalore, in partnership with Kellogg's, Akshaya Patra distributed cereal, milk, a bowl and spoon and a leaflet on the importance of breakfast to 100,000 students (Akshaya Patra, 2014b). In 2016, Akshaya Patra partnered with the technology firm LeEco, which pledged to provide meals for two children for every smartphone purchased (*The Indian Express,* 2016b). Akshaya Patra partnered with biscuit manufacturer Britannia Good Day: 'For every smile uploaded on their web page or Facebook, Britannia Good Day will give away a packet of delicious cookies to a child' (Akshaya Patra, 2016e). Akshaya Patra also partnered with stationary brand MyCopie: 'for every notebook sold, MyCopie is donating a part of their revenue to the Foundation, so that children do not have to forego their education due to lack of food' (*ibid*). Links between Akshaya Patra and the private sector extend beyond India. For example, when dining at the restaurant Dishoom, one finds the following on the menu:

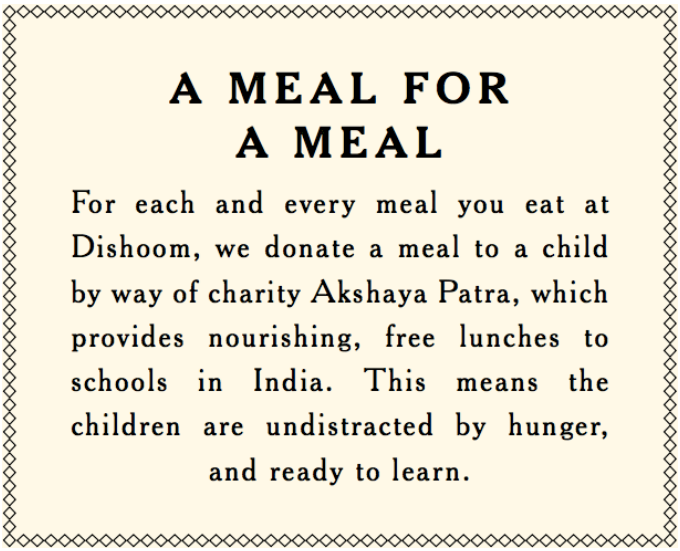


Figure 7.4: Akshaya Patra and Dishoom. The above is featured on the menu at the restaurant Dishoom (Dishoom, 2017)

The links to the private sector increases the amount of money Akshaya Patra have and thus, in principle, benefits the MDMS. However, there are two problems with these links to the private sector. Firstly, the language used is often inaccurate. For example, there is the implication that because of the partnerships with LeEco and Dishoom a certain number of meals will be provided. This is not how the scheme functions. Instead, any financial donation will supplement the national and state governments' contribution. The suggestion of 'a meal for a meal' is thus inaccurate. Moreover, implicit in the above particularly in the slogan used by MyCopie is the implication that without the involvement of the NGO, children would not receive a meal. This echoes the descriptions of NGO involvement discussed in Section 7.6.1. This portrayal of NGO involvement does not reflect the rights-based design of the MDMS. The inaccurate portrayal is also at odds with the principle of transparency; the involvement of NGOs and the purpose of donations are not clear.

Secondly, several of the companies mentioned above are food producers. The involvement of food producers in the MDMS has been discussed in the media when reports of initiatives to involve companies provokes outcry, of which there are two primary examples. In 2008, the president of the Biscuit Manufacturers' Association of India and employee of Parle Products (a large biscuit producer) wrote to Members of Parliament (MPs) to promote biscuits as an alternative to the MDMS (Drèze and Khera, 2008). In response, 29 MPs wrote to the Minister of HRD to ask him to consider the proposal (*ibid*). The move was opposed by civil society (Baru *et al.*, 2008) and was rejected by the MHRD. In 2014, news emerged that the GOI was holding talks with PepsiCo, again prompting outcry (Travasso, 2014). The MHRD denied these talks were taking place (*ibid*) and no initiative was started. In both cases, outcry centred on the concern that the replacement food would be nutritionally inadequate and would not be in the best interest of the recipients. There was also concern that food manufacturers would

have access to an incredibly large market, which might influence future consumer behaviour. Yet, the previous discussion has shown that food companies including biscuit manufacturers are already involved in the scheme. The involvement of companies may also take other forms. For example, recently PepsiCo partnered with Akshaya Patra to raise funds for the construction of a kitchen near Delhi (PepsiCo India, 2016).

Furthermore, in 2014-2015, INR 13.42 million donations were in the form of 'provision and groceries'. During my visit to the Akshaya Patra kitchen in Jaipur, Akshaya Patra were serving *dal* which contained donated pasta. There is a lack of transparency as to the nature and origins of these groceries. The donation of groceries also has implications for whether food is served according to preference, cultural acceptability and local taste. Needless to say, pasta in *dal* does not typically feature in the diets of children in rural Rajasthan.

The involvement of NGOs in the MDMS blurs the lines between rights, charity and business. As put by two expert interviewees, 'You get the impression that it is charity' (IA11) and 'now it [the MDMS] is part of charity, big business' (IN7). The reintroduction of charity firstly derives from how the NGOs are funded. As shown in Table 7.8, Akshaya Patra rely on charitable donations, without which their involvement in the MDMS would not be feasible. Secondly, the NGOs are portrayed and portray themselves as charitable organisations. The NGOs are typically discussed as being driven by a commendable and compassionate desire to provide charity (e.g. India TV News, 2015; Pieroni, 2014; Somasundaram, 2016). The organisations also describe themselves in this manner. For example, a video detailing Akshaya Patra's involvement in the MDMS was titled 'Akshaya Patra Foundation: Compassion. Food. Hope' (Akshaya Patra, 2016d). Akshaya Patra's 2015-2016 report was titled 'The Passioneers; Bound by purpose. Driven by Passion' (Akshaya Patra, 2016a). Even less subtly, a recent book about the organisation was titled 'God's own kitchen' (*ibid*). The involvement in the MDMS is therefore discussed as a philanthropic act often connected to religion, rather than as a partnership with the government to provide an existing service. A noted advantage of RBAs is that they changed how development is perceived, from an act of charity to rights realisation (Section 2.3.1). Evidently this change does not automatically occur and can be affected by the duty-bearers involved.

Echoing Fisher's (1997) work on NGOs, the NGOs in the MDMS are seen to be 'doing good'. Consequently, any criticism of these organisations is controversial, perceived as a criticism of charity, and sometimes the organisation's religion. Indeed, in response to an article I wrote regarding the problems in the centralised model (Whittaker, 2015), one commentator wrote 'It's charity dear author' and another emailed directly to remind me that Akshaya Patra is a 'noble cause' and thus the lack of certain items on the menu (and the denial of entitlements) was not an issue. Children are no longer seen

as rights-holders, but beneficiaries, who should be grateful for the food they receive as they are poor. Furthermore, echoing Zivetz (1991), Fisher (1997) and Ferguson (1994), perceiving these organisations as charity means that they are seen as distinct from the state and are thus depoliticised. The organisations are not seen as influenced by politics, profit or religion. Yet, I showed in Section 6.6.6 that the provision of food by these organisation is influenced by religious and political concerns.

The involvement of NGOs is also at odds with several rights-based principles. Centralised provision renders the participation of the community in the monitoring of the MDMS nearly impossible. As was mentioned in Section 2.5.4., Drake *et al*. (2016: 273) stated that the involvement of organisations such as Akshaya Patra in the MDMS has 'promoted community participation through fundraising and volunteering'. Yet, this is an abstract interpretation of both "community" and "participation". The involvement of NGOs has instead been to the detriment of the participation of the community within which people are rights-holders. I have also shown that the portrayal of the involvement of NGOs is not transparent. The lack of preference for women and the needy in employment prevents the empowerment of CCHs. By providing the meal in rural areas, NGOs were not adhering to the rule of law. The NGOs are also perceived to be 'doing good', which limits the extent to which they are and can be held accountable; an issue discussed in further depth in the subsequent chapter.

7.7 Conclusion

Although the MDMS is the GOI directly fulfilling the right to food, the duty to provide a hot, cooked meal is exercised through intermediaries. These intermediaries are both employees of the state, teachers and CCHs, and partners of the state, NGOs. In this Chapter, I examined these intermediaries as well as the role of the community in the MDMS. In Section 7.2, I showed that although SMCs are considered to have primary responsibility for the MDMS in Rajasthan, they played a limited role in the scheme in the study area. When the findings presented in this chapter are considered alongside those presented in Chapter 6, it is clear that the involvement of duty-bearers and the duties they perform do not necessarily reflect the proposed responsibilities outlined in Chapter 4.

I have shown that in the decentralised model, actors at the school level have a considerable influence on the MDM. However, following Schaffer (1984) and Gupta (2012), it is not the case that these low-level officials can be automatically blamed for the non-fulfilment of duties. Rather, these actors should be considered in the wider context of the determinants of their capacity. Hupe and Buffat's (2014) distinction between 'demands' and 'enablements' is useful here. Based on the empirical data presented in Chapters 5-7, the demands and enablements on teachers and cooks in the MDMS are as listed in Table 7.11.

Table 7.11: Demands and enablements of teachers and cooks

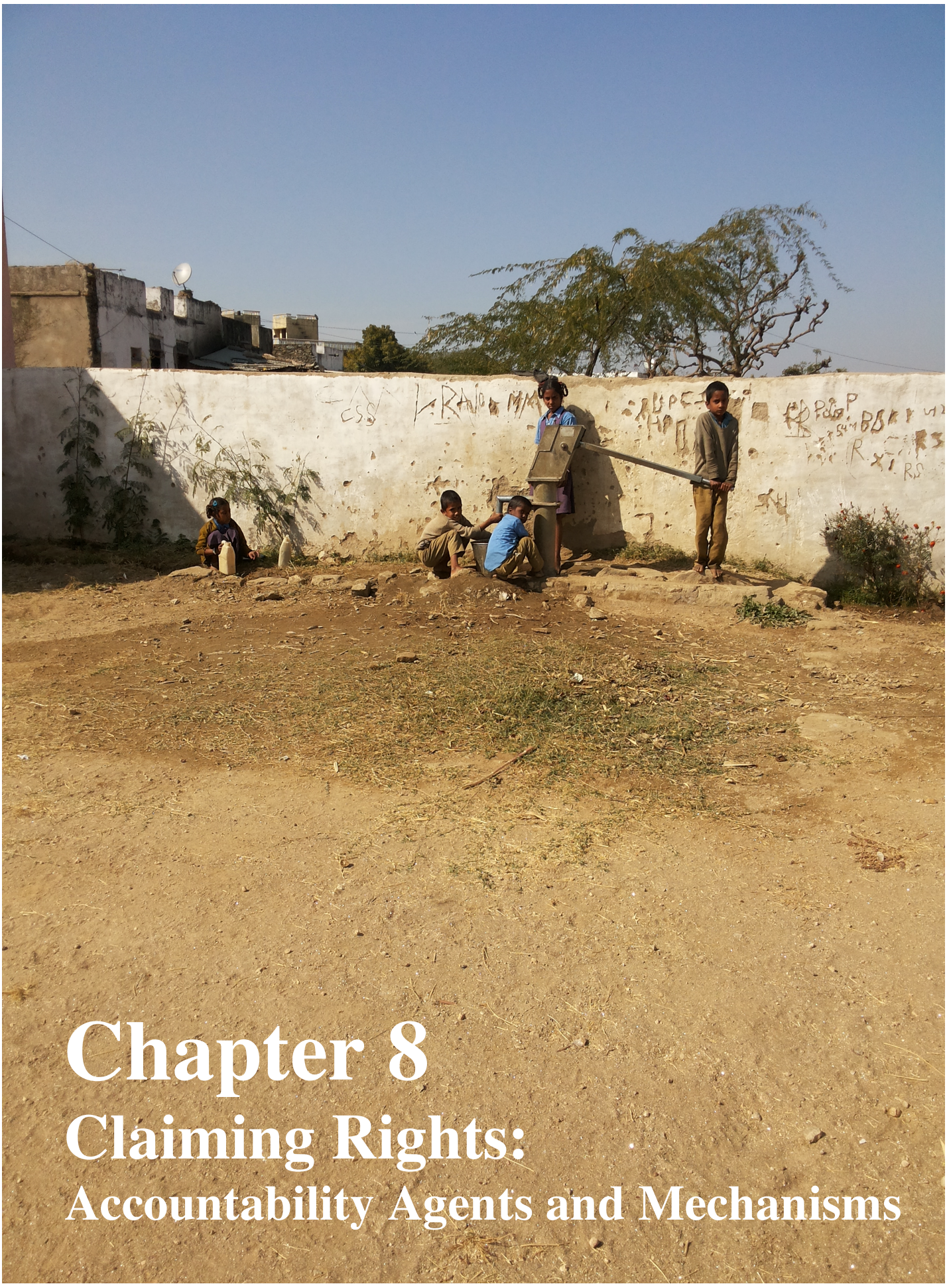
Demands	Enablements
- Supply a MDM that adheres to the GOI guidelines and state-level menu - Supply a MDM that is within the budget provided by GOI and GOR - Supply a MDM that reflects local taste one day per week - Teachers to taste the food - Teachers to complete necessary records - Unofficial/informal demand to feed extra children (siblings and grade IV and above)	- Human resources: number of CCHs, teachers - Financial: insufficient budget to supply food as per menu and guidelines - Time: to prepare and cook the MDM - Training of CCHs - Access to food: problems in the supply of food grain, access to markets, practicalities of bringing food to school

Throughout this chapter, I have shown that the 'enablements' are often insufficient to meet the demands. A public service gap results (Hupe and Buffat, 2014). Resulting from this gap, teachers and cooks must use coping strategies to attempt to meet demand. As shown throughout this chapter and the previous empirical chapters, this affects the implementation of the MDMS. For example, an insufficient budget and/or insufficient human resources may result in non-adherence to the menu and guidelines on quantity. These explanations should not be seen as 'escape hatches', but instead as fundamental flaws in the scheme's design. Yet, these actors also exercise agency; both in the extent to which they attempt to meet demands and the choices they make in regards to how to cope with the demands placed on them. For some, coping strategies might include altering the menu or inflating figures. For others, it may be in choosing not to serve the MDM regularly or at all.

In the study area, although the community are expected to be involved in the MDMS, organisational arrangements are not in place to facilitate this participation. Existing power dynamics, invisible power between schools and parents prevents parents from exercising what can be called an imperfect obligation towards the MDMS; they do not feel that they have the power to monitor or comment on the MDMS. Consequently, the involvement of the community in the study area was found to be minimal.

Although NGOs are subject to the same official demands as teachers and cooks, NGOs do not face the same constraints as actors at the school level. Instead, agency plays an even greater role in determining whether duties are fulfilled; NGOs decide how to organise their operation and what food to supply.

The results presented in this chapter also have implications for the extent to which the MDMS can be considered to reflect the principles of human rights. I have shown that the anticipated participation of the community does not occur frequently; in the study area, both the involvement of the SMC and the wider community in the MDMS were limited. The MDMS has the potential to be a source of empowerment for CCHs; however, this is currently undermined by the inadequate allocation and distribution of resources. Finally, I have shown that the choice of delivery model has implications for rights-based principles. Centralised provision has been shown to not always adhere to the rule of law, and to potentially be detrimental to participation, empowerment and transparency in the MDMS.



Chapter 8

Claiming Rights:

Accountability Agents and Mechanisms

Chapter 8

Claiming Rights: Accountability Agents and Mechanisms

8.1 Introduction

The right to food case and the Supreme Court judgement can be interpreted as a hybrid form of accountability; 'diagonal accountability' that bridges the divide between vertical and horizontal accountability (Goetz and Jenkins, 2001). The PUCL on behalf of the citizens of Rajasthan used the Supreme Court to hold the GOI to account for their constitutional duties to protect the right to food. The right to food case and legal accountability within the MDMS have been widely discussed (e.g. Birchfield and Corsi, 2010; Guha-Khasnobis and Vivek, 2007; Hassan, 2013). Yet, internal and external accountability mechanisms to ensure the realisation of entitlements have not been considered. In the previous three chapters, I have shown that frequently duty-bearers in the MDMS did not fulfil their duties and thus rights-holders did not receive their entitlements. Accountability mechanisms are consequently necessary to detect and correct the non-fulfilment of duties. Therefore, in this chapter I examine accountability in the MDMS, beginning with internal accountability within the government followed by external accountability from rights-holders and their parents. I consider accountability in practice and the task of determining responsibility. The focus throughout is core accountability. A broader notion of accountability is whether the GOI should be held accountable for not doing more to tackle child malnutrition, for example in the context of budget cuts (Section 4.5.4). Of course, this 'expanded' notion of accountability is important, but is not of primary concern in this chapter.

8.2 Internal Accountability

8.2.1 Information

Bureaucratic accountability in the MDMS involves government officials monitoring data. The availability of data is therefore a prerequisite for monitoring. Schools must complete and submit monthly forms detailing the implementation of the MDMS (Section 4.5.7). However, not all school records are submitted or entered at the block level. The GOR (2016a) details the monthly data completion rate at the state and district levels between April 2015 and February 2016. Although in April there was a 99% completion rate, by February, the completion rate had decreased to 71% in Rajasthan, 81% in Rajsamand and 59% in Udaipur. There is a general decrease in the completion rate over time, indicating that it can take several months to submit and process the forms. Moreover, the speed of data entry varies geographically; data entry in Udaipur district was particularly slow. The slow data entry means that these forms cannot lead to the timely detection and correction of problems. The system also relies on teachers' honesty and competency, without which, these reports are useless. For example, the monthly records from CS3 reported that the school was open for 30 days in September 2014 and 31 days in the October 2014 and January 2015. Clearly, the question regarding the number of working days had been misunderstood and the teacher had written the number of days in the month. The irregular provision of the MDMS at this school has already been discussed (Section 5.3.5). Yet, based on the school's monthly data form, no problem would be detected or corrected.

Accurate data are also required at the state level. However, mismatches between the data provided using the Management Information System (MIS) and the data from state governments are common. Table 8.1 compares the figures in Rajasthan. As shown, discrepancies are often sizable.

Table 8.1: Discrepancies in data for Rajasthan in 2015-2016 (MHRD, 2016a)

	MIS	**AWPB**	**Difference (MIS-AWPB)**	**Percentage difference MIS and AWPB**
Institutions	72,854	71,344	1,510	2.1
Working Days	154	163	-9	-5.5
Enrolled Students	4,163,220	4,999,315	-836,095	-16.7
Number of CCHs engaged	116,181	115,622	559	0.5
CCH honorarium	8,902	9,134	-232	-2.5
Cooking cost	26,786	33,009	-6,223	-18.9
Food grains	131,347	86,444	44,903	51.9
Schools with Drinking Water	67,682	71,003	3,321	-4.7
Schools with a Toilet Facility	69,333	71,003	1,670	-2.4
Schools with a gas connection	30,611	57,954	27,343	-47.2

The implications for accountability are clear. Without complete, accurate and timely data, the identification and subsequent correction of problems becomes less likely.

8.2.2 Monitoring

Bureaucratic accountability also involves officials monitoring the implementation of the MDMS in schools. Since 2009, the GOI has co-ordinated JRMs to monitor the MDMS (Section 4.5.7). The missions involve internal (bureaucrats) and external actors (experts), although the missions can be considered an internal accountability measure. These missions are thorough and detect problems. For example, the fifth review mission to Rajasthan (MHRD, 2014b) identified several problems in the MDMS, including delay in the provision of cooking cost and grains and payment to cooks and irregularities in provision by SHGs and NGOs. In response, the state government submitted a report on the action taken. Of course, the suggestion of action does not mean that action was taken and that the problem corrected. Indeed, Section 7.4.3 showed the delayed payments to cooks continues.

The frequency of JRMs has also varied over time (Table 8.2). The JRMs in 2013-2014 were the most comprehensive and thorough; teams measured the quantity and nutritional value of the MDM and assessed students' food consumption at home. Such detailed analysis has not been replicated since.

Table 8.2: The number of Joint Review Missions (MHRD, 2017b).

Year	Number of states covered
2009-2010	3
2010-2011	2
2011-2012	8
2012-2013	8
2013-2014	20
2014-2015	1
2015-2016	9

Block and district level officials must conduct inspections (Section 4.5.7) The GOR (2016b) report that government officials conducted 55,146 inspections between April and December 2015, which equates to visiting 77.3% of schools in Rajasthan. This number of inspections would be sufficient given that one quarter of schools should be inspected per quarter. However, this is based on the assumption that no school was inspected more than once. Moreover, the percentage of schools inspected also varied by district. In nine districts in Rajasthan, the percentage was lower than 75%; 72.6% of schools in Udaipur

and 65.7% of schools in Rajsamand were inspected (GOR, 2016a). Records indicate that these inspections can lead to the detection of problems. For example, intensive inspections in Rajasthan in July 2015 identified 320 schools (of 12,185) at which the MDMS was unsatisfactory (GOR, 2016a). Schools were labelled 'unsatisfactory' for several reasons, including: delayed receipt of funds for cooking and the CCH's honorarium; unsatisfactory quantity of the MDM; failure to display information as per the RTE Act (see Section 8.3.1); and the non-availability of facilities such as gas. It is unclear whether a mechanism exists to ensure that schools correct the detected problems.

Most teachers confirmed that inspections occur; 27 stated that government officials had visited in the previous year. Of the 15 that specified frequency, seven reported that visits occurred two to three times per year, two reported visits three to four times per year and six stated visits occurred more than four times per year. However, teachers at eight schools reported that officials did not visit; one school in Girwa, three in Khamnor and four in Kumbhalgarh. I observed one inspection; the BEEO conducting an inspection at school number 18. This school was located at the side of the highway and was on the way to work for the official. Officials at NGOs (IN6; personal communications) reported that officials typically did not visit remote areas. Experts also noted that the human resources required to monitor schools were insufficient (IN2, IG4). For example, the BEO in one block stated that they were supposed to monitor 10 schools per month, but there were 358 schools in the block (IG4). At this rate, it would take almost three years for each school to be visited. Furthermore, the MDMS is not the only scheme for which the BEO is responsible. The imbalance between the demands placed on low-level officials and their resources (both time and financial) is well-known. Indeed, Harriss and Jeffrey (2013) criticise Gupta (2012) for failing to consider the number of programmes for which block-level offices in his analysis in *Red Tape*. Thus, in the MDMS it is unsurprising that some schools which are difficult to get to are not visited more frequently.

The quantity of inspections, however, says nothing about their quality. Firstly, the timing of the inspections is important for accurate evaluation of the MDMS. Yet, not all inspections are conducted during the lunch break. The MDM is typically consumed between 10:00-10:30am in the summer (March to early September) and 12:00-12:30pm the rest of the year. The timings recorded in the reports for inspections by block-level officials show that the official was unlikely to have observed the meal in 26 of 51 inspections in Girwa and 29 of 48 inspections in Kumbhalgarh (Table 8.3).[1] If officials are not present during lunchtime, this raises doubt as to the accuracy with which they can answer questions regarding whether the correct food was served and whether the food was tasted by a teacher.

[1] Officials are considered to not have observed the meal if they reported arriving after or significantly before the meal was served.

Furthermore, officials do not always complete all questions on the monitoring forms. For example, in the Girwa records, the type of food served was recorded at 38 of 61 schools.

Table 8.3: The number of inspections at each time (from monitoring records 2014-2015)

Time of inspection	Girwa		Kumbhalgarh	
	Summer	Winter	Summer	Winter
Before 9am	1	0	0	0
9am-10am	5	0	0	0
10am-11am	12	0	10	2
11am-12pm	7	3	1	8
12pm-1pm	1	5	2	3
1pm-2pm	1	9	0	19
2-3pm	0	3	0	1
After 3pm	0	4	0	2
Total	**27**	**24**	**13**	**35**

The extent to which NGOs were held to account was also found to be limited. In PPPs, governments should ensure public accountability (Forrer *et al*., 2010). As shown in chapters 6 and 7, the NGO supplying the MDM in the study area was not adhering to the state government menu and was violating the NFSA by providing the MDM in rural areas. Although district officials were aware of the violations, the NGO was not held to account. Interviews with the district officials indicated that they did not perceive the deviations to be a problem. The district official considered urban areas to encompass areas 40km from the city, amla candy to be a sufficient replacement for fruit, and the food storage to be the same as food being stored in a tiffin. Both officials at the district level agreed that the involvement of the NGO was a success and should be expanded to cover all blocks in the district (IG6, IG7).

Performance evaluation is a key component of accountability in PPPs (Forrer *et al*., 2010) and in NGOs (Ebrahim, 2003). Such evaluation may be external or internal and one would expect evaluation to be based on the achievement of designated aims, perhaps along-side considerations of value for money. Although Akshaya Patra's website features seven studies of the impact of the scheme, these are limited in their scope and methodology. For example, a study by Kamath *et al*. (2012) in Karnataka is titled 'Measuring the Impact of the MDM on Growth'. However, the study merely compared the nutritional status of children receiving a MDM from Akshaya Patra with malnutrition data from other states, and therefore does not show the impact of the MDMS. No evidence of upwards accountability in the form of performance evaluation was found.

Overall, although officials monitor the implementation of the MDMS in schools; the coverage and quality of these inspections are limited. Internal accountability in PPPs is largely absent.

8.2.3 Committees

Steering-cum-monitoring committees are a third form of internal accountability in the MDMS. The state-level committee is expected to meet every six months. The dates for these meetings are listed as occurring on 21 May 2012, 8 April 2013, 20 March 2014 and 16 April 2015 (MHRD, 2017b). These meetings occurred annually, not bi-annually. District level meetings should occur monthly. Between April and December 2015 one would expect there to have been nine meetings in each district in Rajasthan, totalling 297 meetings. Yet, only 132 meetings (44.4%) were held (Table 8.4). In Udaipur, just two meetings were held. The MHRD notes the infrequency of these meetings (*ibid*), but does not discuss the reasons for the infrequency or corrective actions. The extent to which these committees can play a role in ensuring accountability in the scheme is thus reduced and is also variable. The GOR do not provide details of the meetings at the block level.

Table 8.4: Frequency of district steering-cum-monitoring committee meetings between April and December 2015 (GOR, 2016b)

District steering-cum-monitoring meetings in 9 months	Districts
0	Jaipur, Karauli, Pratapgarh, Tonk
1	Bhartpur, Bikaner, Humangarh, Sawai Madhopur
2	Alwar, Jhunjhunu, Sikar, Udaipur
3	Dholpur, Ganganer, Jalore, Jhalawar, Jodhpur, Kota, Nagaur
4	Banswara, Barmer
5	Ajmer
6	Chitorgarh, Churu
7	Dungarpur, Pali, Sirohi
8	Rajsamand
9	Baran, Bhilwara, Bundi, Dausa, Jaisalmer

The national committees do not fit neatly into the categories of accountability, as these committees contain internal and external actors and the relationships between these actors are indicative of both bureaucratic and professional accountability. The NSMC is expected to meet at least every six months

(GOI, 2004). However, records (MHRD, 2017a) indicate that between 2009-2011 and since 2014, the meetings have been annual. The Empowered Committee is expected to meet every three months (Section 4.5.2); however, the committee met in April 2014, October 2014 and September 2016 (MHRD, 2016b). These minutes typically take the form of the MHRD reporting to the committee members as to the progress and the current procedures and norms. Typically, discussions are broad and specific actions are not always identified.

Therefore, the various committees tasked with monitoring the MDMS do not meet as often as they should. One can expect that the infrequency of meetings reduces the capacity of the committees to detect and correct problems.

8.3 External Accountability from 'Below'

8.3.1 Awareness

For accountability to occur, 'rights holders must know their rights' (Kent 2010: 160). As the rights-holders in the MDMS are children, it is necessary that their 'representative', typically a parent, is also aware of entitlements. The awareness of entitlements in the MDMS is two-fold. Firstly, there is the entitlement to receive a hot-cooked meal every school day. Drèze (2004b) highlights the importance of the MDM being perceived as an entitlement. Drèze contrasted Tamil Nadu, where a MDM is seen as a basic entitlement with states such as Madhya Pradesh, which does not have the same history of the MDMS, causing implementation to be more 'casual', 'to the extent that the meal often failed to materialise on a particular day, without anyone making a fuss' (*ibid*: 1728). In this study, respondents were mostly aware that their child should get a MDM and that it was a government scheme. However, awareness was not universal. At school 14 (CS3), the teacher had informed families that the MDMS was no longer running. With no other access to information, the villagers believed the teacher and no longer perceived the MDMS to be an entitlement.

Secondly, there is the entitlement to receive food as per the state government's menu and the GOI's norms. To determine awareness of the menu, parents were asked what food was served in the MDMS. In HS1, 296 respondents (73.6%) listed three or more items served at school and a further 22 (5.5%) listed one or two items. However, no one could list what should be served on each day of the week. Moreover, the widespread ability to name items on the menu is perhaps unsurprising as the menu reflects local food habits. A further 31 households (7.7%) did not list any items, stating only that the food followed the government menu. The other 47 respondents (11.7%) did not know what food was

served at school.[2] Essays indicated that students did not necessarily know the menu. It was only at the fourth case study school that the majority of students recited the menu, likely due to Akshaya Patra's adherence to their menu (Section 6.2.1). Therefore, most rights-holders and their representatives could not precisely recall the menu.

Only two parents referred to the GOI's norms on quantity; at household seven at school six and household 33 at CS2. Both respondents knew that their child should receive 100g of grain, which they considered insufficient. For the rest, however, perceptions of quantity were based on perceived need; for example, the knowledge that one *roti* was insufficient to meet their child's needs. Some parents could not comment on the quantity; in HS1, 37 (8.8%) did not know whether the quantity was adequate. Students' perception of quantity was also based on their experience, rather than relative to the guidelines.

Limited awareness of the MDM menu and norms is unsurprising given the limited efforts by schools and officials to create transparency and awareness. The GOI requires the MDM menu to be displayed at each school. Following the 2005 Right to Information Act, the GOI (2006) specify that the following information should also be displayed in schools: the quantity of food grains received and the date of the receipt; the quantity of grains used; the quantity of other ingredients that have been purchased and used; the number of children receiving the meal and the roster of community members involved in monitoring the scheme. The GOR (2016a) consider the display of this information to be a way of ensuring transparency. The GOR (2015b; 2016a) report that the menu, the MDM logo and the CCH's honorarium are displayed in each school. Observation showed that this was not the case. The menu was displayed in 19 of the sampled schools (44.2%) and was not displayed in any of the 10 schools served by the centralised kitchen. Even when displayed, menus were not necessarily visible to children or parents (Figure 8.1). The additional information required was also not displayed. The failure to display the menu has also been found outside the study area. The three independent monitoring institutions in Rajasthan found that the menu was displayed in 232 of 316 schools (73.5%) across eight districts and that the additional information required was not displayed in any school (Centre for Development Communication Studies, 2015; Institute of Development Studies Jaipur, 2015; Shiv Charan Mathur Social Policy Research Institute, 2015).

[2] The remaining six households or 1.5% of the sample could not answer the question as no food was served at their child's school.

Figure 8.1: Displaying the menu. Top left: a simple form of the menu is displayed at school 39. Top right: A menu displayed inside the building at school 20. Bottom left: School 43: Board for the details of the stock of wheat, rice, *dal*, oil, sugar, ghee and vegetables at school 43. Clearly no information is displayed. Bottom right: At CS2, the menu, displayed in a visible position near the school entrance, notes that fruit should be served on a Tuesday. There is also space for details regarding the cook, although this has been left blank.

To generate awareness of the MDMS, state governments can also organise media campaigns. The GOR (2016a) report that a two-day workshop was held in Jodhpur in October 2014, the outcome of which was published in the media. The entire project cost INR 2 million (*ibid)*. Yet, the nature and scale of the workshop or the material that resulted from the workshop are not described. Further campaigns have not been conducted in Rajasthan.

Kent (2010) wrote: 'One can only wonder how many children or parents in India know the actual content of the Supreme Court's specifications regarding school meals (161). In this section, I have shown that although there was a general awareness of the entitlement to a MDM, a very small number of people knew the content of the Supreme Court's specifications regarding quantity, or the GOR's menu. Given the limited attempts by schools and the state government to raise awareness, the lack of awareness among rights-holders and their representatives is unsurprising. In the absence of information, not only is the capacity of the representatives of rights-holders to exercise their voice limited; so too is the scope of issues on which they might exercise their voice. If entitlements are known as simply the provision of an edible meal, then only the absence of this would prompt attempts to exercise voice.

8.3.2 Accountability: In action and inaction

Attention now turns to the existence and use of accountability mechanisms. Pavan (2016), reporting data obtained from the MHRD, stated that 280 complaints about the MDMS were received between 2013-2015. The number of complaints varied by state (Table 8.5). Action such as suspension was taken against those responsible in 32 instances (*ibid*).

Table 8.5: The number of complaints received 2013-2015 (MHRD in Pavan, 2016)

State/UT	Complaints	State/UT	Complaints
Andaman and Nicobar Islands	1	Karnataka	7
Andhra Pradesh	6	Kerala	1
Arunachal Pradesh	1	Madhya Pradesh	14
Assam	12	Maharashtra	14
Chhattisgarh	8	Odisha	13
Chandigarh	1	Punjab	4
Bihar	49	Rajasthan	7
Delhi	13	Tamil Nadu	1
Goa	2	Telangana	2
Gujarat	3	Tripura	1
Haryana	12	Uttarakhand	5
Himachal Pradesh	1	Uttar Pradesh	71
Jharkhand	16	West Bengal	15

The GOR (2014b) report that between April and December 2013, 39 complaints were received in Rajasthan. The nature of these complaints and the actions taken are detailed in Table 8.6.

Table 8.6: Complaints in Rajasthan in 2013 (GOR, 2014b)

Complaint	**District**	**Complaints**	**Date**	**Action taken**
Food Grains	Bundi	1	December	Enquiry by police
Against NGO/SHG	Ajmer	7	April and July	Closure of the Naandi Foundation kitchen.
Kitchen devices	Dungarpur	28	2013-2014	Resolved (action not stated)
Untoward Incident[3]	Bhilwara	1	July	Dead lizard in the *dal* and children became ill. BEO fired. MDM in charge and headmaster suspended. CCH removed and replaced.
Other	Dausa	2	July, September	Report submitted to the MDM directorate. Action taken against MDM in charge and head master. Two cooks fired.

Table 8.6 indicates that there is a functioning grievance redressal system in Rajasthan; however, Table 8.6 cannot be considered to contain all complaints received in 2013-2014. From an interview conducted with a district official (IG1) and the discussions with other officials, teachers and parents, it is clear that complaints were made about the Naandi Foundation kitchen in Udaipur. These complaints are missing from the data. For 2014-2016, the GOR reports that no complaints were received, indicating that either these accountability mechanisms are not being used or that the information is not being recorded.

To examine who the rights-holders' representatives would hold to account, respondents were asked who they would complain to if there were a problem with the MDMS. Table 8.7 details the total number of times each actor was mentioned. Of the 265 participants that would complain, 211 (79.6%) reported they would complain to a teacher, reflecting the position of teachers as street-level bureaucrats. Difficulties are likely to arise when teachers are both the source of the problem and the agent of accountability. For example, at CS3, households only knew to complain to the teacher; yet, it was the teacher who had decided to stop serving the meal. In the absence of the means to contact a block-level official, parents were left without an accountability mechanism and therefore without a MDMS. In this

[3] The GOI and GOR term instances when children fall ill after consuming the MDM 'untoward incidents'.

context, power most certainly had a face; the teacher used their power to prevent rights-holders from receiving their entitlements and to shape the sense of entitlement among rights-holders' representatives.

Table 8.7: Who participants in the first household survey would complain to in the event of a problem with the MDM (*n*=439)

Response	Girwa	Kotra	Khamnor	Kumbhalgarh.	Total	
					Freq.	%*
Teacher	76	41	51	43	211	48.0
SMC	13	0	1	5	19	4.3
Cook	3	0	0	2	5	1.1
BEO	4	3	1	2	10	2.3
Local government	4	7	7	0	18	4.1
NGO	0	0	2	0	2	0.5
Don't want to	2	18	12	3	35	8.0
Don't know how	12	22	17	23	74	16.8
No need to as food good	1	3	2	1	7	1.6
Don't care	2	3	2	4	11	2.5
No point	3	2	1	1	7	1.6
Won't complain	3	10	2	11	26	5.9

*Note: Some respondents cited more than one person to complain to. Thus, the frequency refers to the total number of times each actor was mentioned.

Table 8.7 also shows that the NGO was typically not perceived as the actor to complain to in Khamnor. Ebrahim (2003) outlined four types of participation between the public and NGOs: the supply of information and dialogue with the public, public involvement in the project, the negotiation of decisions with the NGO and finally people's own initiatives that occur independently from the NGO such as protests. There are no mechanisms in place to enable the first three forms of participation. For example, there is no direct means for rights-holders or their parents to communicate their opinions or needs to NGOs. Any complaint must be made to the teacher, reported to the driver and then reported to management. The capacity for the final form of participation was also limited due to a lack of awareness of where the food was coming from. In Khamnor, the NGO was not perceived as the institution to complain to. Two households reported that they would complain to Akshaya Patra and named the organisation (Table 8.7). Beyond this, the name of the organisation was not mentioned in the household surveys, interviews or essays. Participants were aware that the food came from Nathdwara, however the name of the organisation was not mentioned.

Table 8.6 shows that 160 people did not cite anyone to complain to. Of these, 86 respondents stated that they did not want to or would not complain. Seven stated that this was because they were poor, low caste or illiterate and six stated it was because no one would listen to them. For example, the parent at household 4, school 15 asked '*Hamari kaun sunega?* Meaning Who will listen to us? The same sentiment was also expressed by interviewees. For example, interviewee two at CS2, stated that she could not complain, as teachers and cooks are in a union and would 'scold her'. She said she would only complain if the whole village did. The decision as to whether they would complain was made in the context of existing power relations.

Reflecting a common trend in government schools (Mooij, 2008), often teachers resided in a nearby town or city and were of a different socio-economic status and caste than their students. This, combined with their position of power, makes teachers more powerful than parents. This goes beyond Lukes' third dimension of power; it is invisible power (Gaventa, 2006; VeneKlasen and Miller, 2002). Following Hayward, social structures determine the relative power of teachers and parents, affecting whether parents feel they have the freedom to act.

A further 74 participants stated that they did not know how to complain. The absence of knowledge was often attributed to caste, poverty and/or lack of education. For example, the respondent from household seven at school 10 stated 'we are poor people and belong to low caste so we don't know what to do'. At school 14, respondents at households four, five, six and eight stated they wanted to complain but they had no idea about it. For example, the respondent at household six stated that 'in this village no one is educated so we don't have any idea about it'. Two households in the village knew they had to complain to the BEO, but they had no means of doing so. A lack of education combined with a lack of access to information meant that accountability mechanisms were unknown to some respondents, consequently limiting the voice of rights-holders' representatives. Going beyond Paul's (1992) conceptualisation of exit and voice, this lack of information is a product of both structure, limiting people's access to knowledge, and the inaction of duty-bearers at the block, district and state level to increase awareness.

Prompted by participants mentioning illiteracy, I analysed responses to the question of who respondents would complain to against literacy levels. Table 8.8 shows a greater proportion of literate people cited a specific person to complain to than illiterate people (67.1 % compared to 54.7%); a statistically significant difference, $\chi^2(1)=5.35$, $p=0.0207$. Of the 74 people who did not know how to complain, 62 (83.8%) were illiterate. There was also a statistically significant difference by block, $\chi^2(3)=30.40$, $p=<0.001$; households were the most likely to complain in Girwa and the least likely to in Kotra. In Chapter 7, I showed that the MDMS was most poorly implemented in Kotra. Thus, where there is a

need for accountability mechanisms to detect and correct problems, people are less likely to complain. The same pattern was also found at the school level. In the six schools where the food was absent or of extremely poor quality (schools 12, 14, 19, 21, 42, 43), 14 of 55 parents (25.5%) reported that they would complain in the event of a problem in the MDMS. In the remaining schools, 225 of 340 (66.2%) reported that they would complain. A form of corrosive disadvantage is therefore occurring.

Table 8.8: Response compared to literacy status and blocks, household survey one

		Cited someone		Did not cite anyone	
		Freq.	**%**	**Freq.**	**%**
Literacy Status	Literate	98	67.1	48	32.9
	Illiterate	134	54.7	111	45.3
Block	Girwa	83	80.6	20	19.4
	Kotra	47	44.8	58	55.2
	Khamnor	55	59.1	38	40.9
	Kumbhalgarh	47	52.2	43	47.8
	Total	**232**	**59.3**	**159**	**40.7**

Although the above highlights significant limitations in the capability parents have to hold duty-bearers to account, this is not to suggest, that all parents cannot and do not complain. Some parents exercise their agency and act. Four households mentioned that they had complained previously. For example, the respondent at household one at school 15 who was also the *sarpanch* had previously complained to the teacher. The grandmother at household one at school 30 had complained to the school that the Akshaya Patra vans were parking at the bottom of the hill, requiring children to carry the containers up the hill to the school. The closure of the Naandi foundation kitchen in Udaipur also shows that effective accountability from below exists in the study area (see Section 7.6.1). Experiences from elsewhere in India also indicate that accountability from below is possible. In particular, social audits whereby the community assess the implementation of the MDMS have been found to be successful (Sinha, 2008) and are advocated by the GOI (2014b). According to the GOR (2016b), 17 social audits were conducted in Rajasthan in 2015-2016 in Dungarpur district, although there is no information as to the findings or consequent action.

8.4 Determining Responsibility

For accountability to occur, one must know who to hold to account; 'If praise or blame can be allocated, accountability can be demanded' (Mulgan, 2003: 23). Teachers have a duty to ensure that an adequate MDM is provided (Section 7.3) and teachers are typically perceived as the actor to complain to in the

event of a problem in the MDMS (Section 8.3). Consequently, teachers are often the ones held accountable, both from above and below, when the MDM causes illness. For example, in 2013 in Bhilwara in Rajasthan, the head teacher and three cooks were suspended after 79 children fell ill (*Daily Bhaskar,* 2013). The most extreme sanction occurred following the 2013 incident in Bihar (Section 4.4.5), for which the headmistress was found guilty of 'criminal negligence and culpable homicide', sentenced to 17 years in jail and ordered to pay a penalty of INR 400,000 (BBC, 2016; Kumar, 2016). Suppliers of the MDMS may also be held to account when untoward incidents occur. Common responses include the suspension of officials, the termination of contracts and, in severe cases, arrests. For example, in 2012 in Pune, Maharashtra four people from a SHG were arrested and the SHG was blacklisted after more than 75 children fell ill (DNA, 2012; Shaikh, 2012). In 2013 in Mumbai, when more than 400 children fell ill after eating cakes, one person from a SHG and one person from the supplier of cakes were arrested (Narayan and Roy, 2013).

Teachers and cooks may also face informal accountability from 'below'. For example, in February 2012 in Jharkhand, parents created a 'ruckus' at a school after eight children fell ill (*Times of India*, 2012a). Teachers are also held to account in the centralised model. In September 2015, after children became ill in Lucknow reportedly after eating the MDM provided by Akshaya Patra, 'angry parents created ruckus, vandalized school property, gheraoed the school and locked the teachers inside' (*Times of India,* 2015b). Teachers are consequently often unhappy about the responsibility they have. For example, after children fell ill because of the MDM in Jharkhand, the Chairperson of the Jharkhand Primary Teachers' Association stated:

> Whenever anything goes wrong with midday meals, we teachers are blamed. If students fall sick after eating the food served in schools, teachers are sent to jail instead of the cook. [Others] are responsible for everything from collecting funds to cooking food still teachers are blamed…We will not get in the way of midday meal preparations. We will just stop doing anything for it. (in Kislaya, 2013)

As I have shown in Chapter 7, the extent to which teachers and cooks *should* always be held accountable is questionable due to the limits on the capacity of these actors to fulfil their duties. For example, if a CCH cooks a meal that makes children ill, they will most likely be held to account, rather than those responsible for ensuring that the CCH is adequately trained and that there is sufficient infrastructure at the school. However, as street-level bureaucrats teachers are the 'face' of the MDMS, accountability is directed at them. The focus on teachers highlights a limitation of accountability in the MDMS; the implementation of the scheme is a product of the scheme's design and the non-fulfilment of duties by a large range of actors who are not sufficiently held to account.

Determining responsibility when untoward incidents occur is, however, often difficult due to uncertainty as to the cause of illness. To illustrate, in December 2014, 19 students in Pune fell ill after consuming the MDM. Two weeks after the incident, the cause of the illness was still unclear; both contaminated water and food poisoning were listed as potential causes (Smart, 2014). In response, the principal of the school had been suspended, yet the SHG continued to serve the meal. Determining cause and responsibility is particularly problematic in the centralised model. A common narrative was found in the reports of untoward incidents in the centralised model: officials from NGOs and sometimes from the government argue that it is unlikely the food from the centralised kitchen caused the illness as the same food was served to children in other schools who did not fall ill. The narrative typically ends with the suggestion of another cause of illness. For example, in 2012, 60 children fell ill in Bangalore. In response, a representative of the supplier of the MDM, Akshaya Patra, stated 'About 85,000 students in different schools were served the same food today, but only this school has complained about it' (*Times of India,* 2012b). In February 2016 in Maharashtra, 247 children were taken to hospital after consuming *khichdi* from ISKCON. According to reports, following testing of the food, a case was filed against ISKCON (*The Indian Express*, 2016c). A few days later officials from ISKCON claimed that the children became ill because they had consumed food from a roadside stall and that the water from a well the children drank from was bad (NDTV, 2016).

Determining responsibility is further complicated when additional actors are involved. Although NGOs should not sub-contract any part of the scheme (Section 4.6.3), in some cases private companies supply food. In 2014 in Lucknow, 64 children fell ill after consuming milk distributed by Akshaya Patra. The dairy that supplied the milk stated 'Probably milk was not kept at the temperature required for it. The milk supplied to 6,000 children was taken from the same tank. Hence, there was nothing wrong with milk' (*Times of India*, 2015a). A representative from Akshaya Patra stated the illness was probably due to dehydration and the consumption of milk on an empty stomach (*ibid*). The most serious incident occurred in May 2016. Three children and an ICDS employee in Uttar Pradesh died, allegedly due to consuming milk in the MDMS supplied by a dairy cooperative (*Hindustan Times*, 2016; Jaiswal, 2016; Qureshi, 2016). In October 2016, the *Times of India* (2016b) reported a case had been filed against Akshaya Patra, under the Food Standards and Safety Act for supplying substandard food. A representative of Akshaya Patra said 'We really don't know what happened, as the same milk was consumed by children of other schools and they are all fine' (in *ibid*).

I am not suggesting that in the examples cited above the MDM provided by NGOs was the definite cause of illness. Rather, I consider these incidents to show that the involvement of NGOs in the MDMS renders accountability problematic, as it becomes more difficult to determined which actor is to blame. Furthermore, even when the supplier denies responsibility, the problem still lies with the centralised

model. The gap between production and consumption and the lack of adult supervision at the school-level which I have discussed in previous chapters, introduces the potential for contamination and illness. Finally, although the centralised model of delivery is considered more hygienic than decentralised provision (Section 6.4.3), illness still occurs in the centralised model. This fact further debunks the narrative of success that surrounds the involvement of NGOs in the MDMS.

8.5 Conclusion

In response to Mulgan's four questions, teachers, cooks, SHGs, occasionally NGOs and block and district level officials are held accountable in the MDMS. These actors are in theory accountable to actors above them, particularly higher levels of government, and below them to the representatives of rights-holders. They can be held to account for deviation from the norms. Yet, in practice, both internal and external accountability in the MDMS are lacking.

The impact of accountability from above may be hampered by the insufficient coverage of schools and by inaccurate data and reporting. When adequate accountability mechanisms to detect the non-fulfilment of duties are absent, sanctions are also absent. The inadequacies of internal monitoring in the MDMS indicates the need for second-order accountability; for accountability institutions to be held accountable (Schedler, 1999). Moreover, in the absence of effective accountability mechanisms to ensure schools fulfil their duties, decisions concerning the MDM consequently rest on the judgment of the teacher, cook and NGOs. Thus, accountability has gone beyond the core sense, and has become 'personal accountability', when accountability is driven by one's moral values (Sinclair, 1995). For instance, a teacher at a single-teacher school one hour from the nearest town who knows that they are unlikely to be held to account by parents or government officials has little incentive to provide the meal as per norms, except for their own acceptance of responsibility and personal accountability. It is in this context, that the decisions made by teachers has considerable impact on the MDM that students receive.

From below, accountability is minimised by the inadequacy of formal mechanisms, a lack of awareness and relative socio-economic position, which varies spatially. These factors combine to make it unlikely for the representatives of rights holders to complain and thus for the non-fulfilment of rights to be detected and corrected. Accountability is particularly difficult in the centralised model, due to the lack of accountability mechanisms and the difficultly of determining responsibility. Using Hirschman's (1970) work on exit and voice, in the MDMS there is no opportunity to exit; the public have no option to go to another provider. Accountability mechanisms are therefore necessary to improve the provision of the MDMS. For example, when the Naandi Foundation supplied an inadequate MDM, formal complaints from parents and schools led to the district officials in Udaipur changing the supplier.

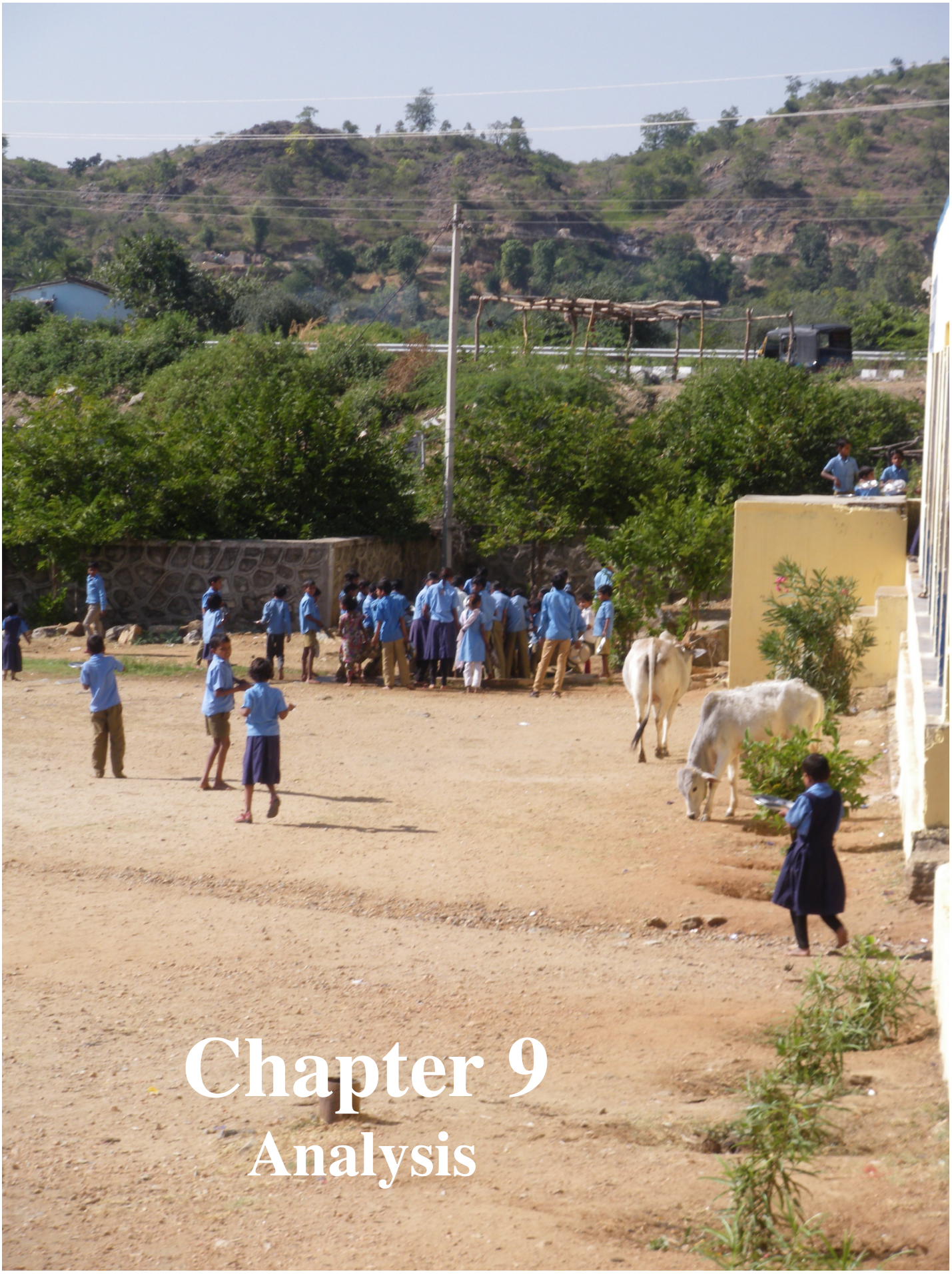
In Paul's framework (Figure 2.8), low exit is limited by high spatial barriers and a local monopoly. These apply to the MDMS; only government schools supply the MDM and there is a spatial barrier to accessing schools. Even in urban locations where it may be more feasible to change schools, one can expect that children will be sent to the nearest school. As parents reiterated throughout the fieldwork, their main concern was education rather than the food received at school and thus it seems unlikely that the choice of school would be based on the MDM. Moreover, to change school, one would also have had to have acquired knowledge as to the quality of the MDM there, which again seems unlikely. In the absence of effective accountability mechanisms, however, children must either consume the inadequate MDM or "exit" the scheme by self-excluding

Low voice is characterised by: high information barriers, high legal and/or institutional barriers, high income barriers and low differentiability of services. As has been shown throughout this examination of external accountability, the representatives of rights-holders face considerable institutional and information barriers. Income has an implicit role, affecting school choice and access to accountability mechanisms and information. However, central to the influence of the factors identified by Paul (1992) are power dynamics. Power in the MDMS takes multiple forms. Teachers may have what can be categorised as third dimensional power, by affecting desires and beliefs, as was the case when the teacher did not serve the meal at CS3. Power may also be invisible; parents are kept from the decision-making table. Power in the MDMS does not always have a 'face'; power also manifests itself as a 'network of social boundaries that constrain and enable action for all actors' (Hayward, 2000: 11). Teachers may not exert their power, but social boundaries shape the relations between teachers and parents. To hold teachers to account, the relatively less powerful parents must overcome these power dynamics to exert their voice; although difficult, this is not impossible and some do resist power structures.

In contrast to Paul (1992), the MDMS can be characterised by high differentiability of services rather than low; education is highly differentiable. More powerful actors do not encounter the MDMS and therefore, apart from a few who act on their imperfect obligations towards a right to food, they do not exercise their voice. Indeed, there is a wider ignorance among the Indian middle classes towards the poor (Mander, 2015a), something Mander (2015b) drawing on Gupta (2012) considers social violence.

Furthermore, noticeably absent from the discussion in this chapter are the voices of students themselves. As shown by the student essays, students can provide detailed feedback. Yet, in the sampled schools, no means were available for the students to provide feedback on the MDM or direct management. In the study area, students have little voice in the scheme.

Kent (2002) argued the 'missing piece' in India's food rights system was accountability from the rights holders, stating 'where there are no effective remedies, there are no effective rights' (7*)*. While accountability mechanisms were not entirely absent in the study area, effective accountability from both below and above were still 'missing pieces' of the rights system.



Chapter 9
Analysis

Chapter 9

Analysis

9.1 Introduction

In this chapter, I bring together the findings from the preceding five chapters to answer the research questions set out in Chapter 2. I consider each sub-question in turn before examining the overall extent to which the MDMS reflects a rights-based approach. Finally, in the context of these findings, I briefly discuss three policy changes to the MDMS and their implications for the realisation of the right to food.

9.2 Objectives

9.2.1. A Means to What End?

A key concern within both the literature on social protection and public policy is the definition of a problem (Section 2.8). The first sub research question consequently asked what problems and objectives the MDMS seeks to address. As outlined in Chapter 4, the current objectives of the MDMS are: to encourage attendance and improve concentration; improve the nutritional status of children; and to provide nutritional support in the summer in drought-affected areas (MHRD, 2006). The scheme also has secondary objectives, including generating employment for the needy and fostering equality. The MDMS cannot therefore be characterised by a single 'search for improvement' (Schaffer, 1984); the aims of the MDMS cut-across the sectors of nutrition and education.

Despite the multiple objectives of the MDMS, the scheme's objective is primarily considered to be educational. This is firstly reflected in the scheme's organisational structure. The MDMS is under the remit of the Department of School Education and Literacy in the MHRD. In Rajasthan, the MDMS is the responsibility of the Department of Rural Development and Panchayat Raj, although in other states it is typically the responsibility of education departments. The MDMS is therefore not the responsibility

of the departments typically responsible for nutrition interventions. As has been shown in Chapters 4 and 7, the emphasis on education is also found in the views of duty-bearers, including national and state government officials, teachers and NGOs. These duty-bearers primarily consider the objective of the scheme to be to increase school enrolment; however, increasing enrolment is no longer a stated objective. Overall, the exact end to which the MDMS is a means to is indefinite.

The empirical findings also indicate potential disparities between the end (the problems the MDMS seeks to address) and the means (the MDMS). Firstly, the MDMS can only do so much to increase attendance. As shown in Chapter 5, attendance depends on the multiple barriers to education. The MDMS can incentivise some students to attend school more regularly, but for others, it is not enough to remove the demand-side barriers to education. The inadequate quality of the MDM may also render the meal unappealing to students. The impact of the MDMS on attendance is therefore firmly entwined with the right to education and the quality of the MDM. Second, the MDMS is intended to address classroom hunger and therefore to improve concentration at school. In Section 6.2.4, I showed that the MDMS is for many students the first meal of the day. It is therefore likely that many students experience classroom hunger in the morning. Third, the MDMS is intended to improve the nutritional status of children. I have shown in Chapter 5 and Appendix D.1, that the MDMS can make a significant contribution to the daily intake of food. Yet, in practice many students do not receive their full entitlements, reducing the contribution of the MDMS to dietary intake. The MDMS could be a vehicle to get children to consume nutritious food, including pulses, green leafy vegetables, fruit and, as appropriate, eggs; however, these are either not included on the menu or are not provided in a sufficient quantity. Overall, the MDMS is neither designed nor implemented to ensure the fulfilment of its objectives.

9.2.2 Uncertainty

The MDMS's objectives are also vague. There are no benchmarks, targets or timeframes in place to determine progress. The limits of the stated objectives become clearer when compared to other SFPs. For example, Brazil's SFP should meet at least 20% of the nutritional needs of children (Drake *et al*., 2016) and Ghana's SFP aims to increase the BMI of the target group to between 19-25 (Government of Ghana, 2010). The MDMS also contrasts with other nutrition policy in India, such as the 1995 National Nutrition Policy which had clear targets and a timeframe (Appendix B.1). Moreover, the GOI has not assessed whether progress has been made towards the realisation of the scheme's objectives (Section 4.2). Thus, not only are the objectives vague, the extent to which they are fulfilled is unknown.

9.2.3 Right to Food and Food Security

The MDMS has the wider objectives of contributing to the realisation of food security and a right to food. The NFSA adopts a life-cycle approach, within which the MDMS is the only scheme targeted at children of school-going age. Yet, the MDMS only addresses one aspect of malnutrition and food insecurity: access to food. The wider determinants of malnutrition, such as sanitation and health are mentioned in the design of the scheme, but are not sufficiently incorporated. For example, a child can consume the MDM in a school without an adequate toilet, safe drinking water and hand washing facilities. The MDMS is designed with consideration for stability, providing food in drought-affected areas during the summer. However, it has been shown that food insecurity increased in a non-drought affected area during the summer. Thus, the scheme does not provide stable access to food. The failure to fully reflect considerations of food security in the MDMS is evident in the fact that the design of the MDMS did not change after the passing of the NFSA.

9.2.4 Implications

The result of the trends discussed above is that the MDMS is seen as a means of providing food for children. The complex and multidimensional nature of food insecurity and child malnutrition have been simplified, so that the issue has become children not having access to enough food. The complex issues that determine school enrolment and attendance have also been simplified, to be the product of access to food; if food at school is provided, then children will attend. Thus, the political problems of food insecurity and inequalities in access to education have been depoliticised and rendered technical, to which the solution is the provision of food. Instead of the state being held responsible, by providing a MDMS the state is seen as taking action towards the solution of these problems. Consequently, attention shifts to the technical issues relating to implementation, rather than larger political problems.

9.3 Rights-Holders

9.3.1 Defining the needy and their needs

Those benefiting from rights-based social protection programmes are not labelled ‘recipients’ or ‘beneficiaries’, but are ‘rights-holders’ (Section 2.3.2). Within a RBA, all of those in need should be rights-holders and particular emphasis should be placed on the vulnerable. Research question 1.ii therefore asked whether the needy were included in the MDMS. The NFSA does not use the language of ‘rights-holders’, but does specify ‘entitlements’. The NFSA also emphasises the need to provide for the most vulnerable and disadvantaged.

In contrast to most SFPs, the MDMS does not target geographically or explicitly by need. The rights-holders in the MDMS are those in grades I-VIII/ aged 6-14 years in government and government-assisted schools. In Chapter 4, I showed that underlying the eligibility criteria for the MDMS is the assumption that those in eligible schools need the MDMS. In Chapter 5, I showed that eligible students do typically have a need for the MDMS. This need was also recognised by the rights-holders and their parents. However, I also showed that the division between the eligible and ineligible in the MDMS is by no means perfect; those excluded from the scheme may still have need for improved food intake.

Although the MDMS is not directly comparable to the US welfare system that Fraser (1987) examines, there are parallels. Attending eligible schools is how recipients prove that they fulfil the criteria to consume the MDMS. Those attending private schools are considered to not need the scheme and those not attending school are implicitly deemed undeserving of the food. By examining the categorisation of students into the eligible and ineligible as was done in Chapter 5, one finds that this categorisation based on assumed need does not reflect reality. Reflecting Fernandez's (2010) characterisation of the division between those BPL and APL, this categorisation can be considered a political technology. In consequence, the MDMS becomes a technical task, to provide food to eligible students and becomes detached from wider issues concerning access to food and education.

There is consequently a disconnect between the right to food and the MDMS. The right to food in India is recognised in the Constitution and in the ratification of international declarations (Section 2.3.4). However, the Supreme Court Orders and the NFSA give only those in eligible schools a right to the MDM. This is problematic if the two categories of children in need of the MDMS and children eligible to receive the MDM do not overlap perfectly, which I have shown to be the case. This is not to suggest that the MDMS should be categorically universal, i.e. available to all children, but rather that the state should directly provide food for all those without the means of realising the right to food. The MDMS should either be available to all children who lack a right to food, or another scheme must exist to meet the needs of those currently excluded.

The identification of the need among targeted children is also problematic. In Chapter 4, I showed that the MDMS was initially expected to provide one third of the RDA of calories and one half of the RDA of protein. These figures were based on the gaps in dietary requirements assessed in a 1990-1992 NNMB survey in eight states (GOI, 1995). The GOI has rarely mentioned these requirements since. Overall, the potential of the MDMS to address nutritional needs has received little attention.

In Chapter 4 and Appendix D.1, I showed that if the norms are fulfilled, the MDM *can* make a sizable contribution to the daily intake of calories, protein, cereals and pulses and a smaller contribution to

vegetable and fruit intake. To reach RDAs, two conditions must be fulfilled; the supplied MDM must adhere to the guidelines and students must also consume at least two well-balanced, nutritious meals at home, as well as fruit and milk.

The empirical data presented in Chapter 5 shows the limitations of this interpretation of needs. Firstly, needs have been simplified. Simplification first occurs in the data used to assess the calorie and protein gap to be filled by the MDMS, which was based on data from just eight states. Furthermore, RDAs for children do not account for variation in activity levels. Although the different needs of lower and upper primary students are reflected in the scheme's design, further differences in need by age and gender are not. As shown in Chapter 4 and Appendix D.1, the theoretical contribution of the MDM to daily intake varies considerably by these variables. One can also expect nutritional needs to vary considerably depending on additional factors including health and household food consumption. The design of the MDMS therefore homogenises children, differentiating between lower and upper primary students only. Yet, in Chapters 5 and 6, I have shown that rights-holders in the MDMS are not homogenous; needs vary between children within each school and between children at different schools. For example, as shown in Chapter 5, food consumption was significantly lower and diets were less diverse in CS3, indicating that dietary needs in this location were higher than at the other case studies. Of course, some simplification and standardisation of need is required for the MDMS to be feasible; however, needs in the MDMS are simplified to an extent that the nutritional aims of the scheme are undermined.

Secondly, the interpretation of needs is flawed. In Chapter 5, I showed that in the study area the MDM was typically one of only two meals consumed per day. I also showed inadequate dietary intake in most of the sampled households. Therefore, for most students in the study area, the MDM is an important source of food; making more of a contribution to daily intake than the government assumes. The assessment of needs is also flawed for failing to account for temporal variation. As shown in Chapter 5, although needs for food are high in the summer, the MDM is absent in non-drought areas.

Thirdly, in Chapter 4 I showed the limits in the extent to which the GOI have sought to incorporate needs into the design and implementation of the MDMS. There is presently no means through which the GOI or GOR can know whether the MDM meets dietary needs. Other than the JRMs, there is no attempt to assess the nutritional quality of the meal provided or the needs of students. The contribution of the MDMS to daily intake is therefore unknown. The implementation of the MDMS is thus largely detached from needs.

Finally, there are two broader issues relating to the interpretation of needs in the MDMS. First, is the simplification of what is needed to fulfil the objectives of the MDMS and to realise the right to food

more broadly. In the MDMS, needs are 'subject to a sort of rewriting operation. Experienced situations and life-problems are translated into administrable needs' (Fraser, 1987: 114). The MDMS transforms the multi-dimensional needs of children relating to both education and nutrition into one administrable need; access to food. Although the Supreme Court Orders and NFSA state that this food should be quantitatively and qualitatively adequate; in the process of implementation, the focus becomes the provision of a meal. The implication is that if the MDMS does not sufficiently meet needs and is the only scheme directed at school-going children, then children's right to food may remain unrealised.

Second, I have shown the politics surrounding needs interpretation in the MDMS. What students need is determined by the GOI and state governments and perhaps is further defined by NGOs and connected organisations. The powerful thus define the needs of the powerless rights-holders. As shown, the interpretation of needs is not necessarily a depoliticised process or fair. Notably, the decision as to whether eggs are included in the MDMS may be made according to the religious beliefs and political interests of the powerful, rather than the interests and needs of rights-holders.

9.3.2 Capabilities

In Chapter 5, I showed that having a right to consume the MDMS does not necessarily lead to the realisation of that right. The consumption of the MDMS requires not only that children are rights-holders, but that they also have the freedom to attend school, as determined by demand and supply-side barriers to education. Then, when at school, children must have the opportunity to and the desire to consume the MDM. Finally, when combined with access to food at the household level, the MDM must fulfil the right to food.

The capability approach is useful to interpret this realisation of rights. The framework presented by Robeyns (2005) shown in Figure 2.2, suggests that goods and services must be converted into capabilities and then functionings. I suggest that this approach can be adapted and expanded to analyse specific goods and services in practice. One must first consider the capability to use a good or service (the freedom to use it) and then whether this capability is realised (the functioning of consuming the good). Then, one must consider how this service is converted into a functioning such as to be well-nourished. This framework is shown in Figure 9.1. For food security to be achieved, the steps in this framework would need to occur consistently.

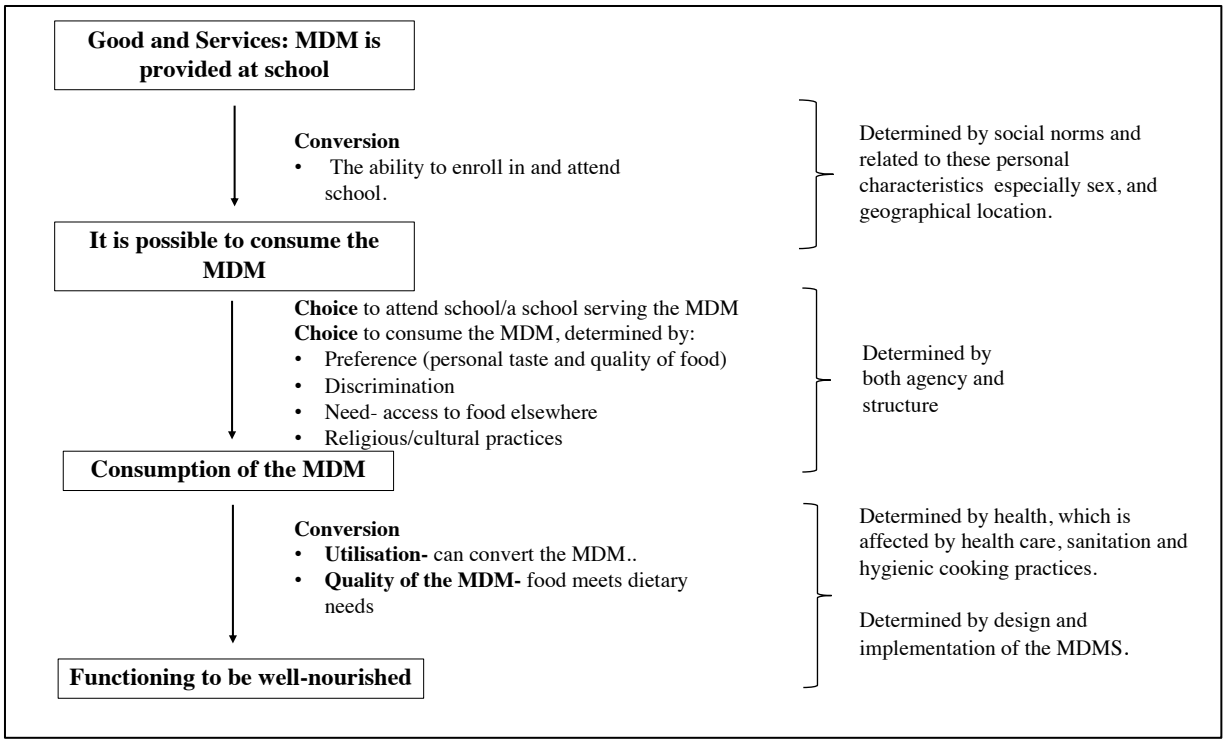


Figure 9.1: Applying the capability approach to the MDMS

The use of the capability approach as illustrated in Figure 9.1 enables one to make several important conclusions about the MDMS. Firstly, by considering the process of realisation as well as the end provision of a service or functioning, it is clear that effective implementation requires more than the provision of a meal. The GOI and state governments should thus also focus on ensuring that children have the capability to consume the MDM. Second, the conversion of the MDM to the functioning to be well-nourished depends on additional capabilities, principally good health. This reinforces the point that food security cannot be realised by the provision of food alone. Taken together, these two points highlight the importance of considering multiple capabilities simultaneously. As has been shown, parents may choose for their children the functioning of being well-educated over being-well nourished by sending their children to private schools. Third, although parents and teachers may make decisions that affect the ability of children to convert capabilities into functionings (Biggeri and Comim, 2011), children also exercise agency in the MDMS. Some children decide whether to attend school and whether to consume the MDMS. Fourth, although firmly connected, Figure 9.1 highlights the importance of the qualitative dimensions of a right to food; preference, taste and food quality.

Of course, the capability approach alone is insufficient to explain the realisation of rights. As has been shown throughout the empirical chapters, the realisation of entitlements heavily depends on whether the MDM is provided and the nature of the meal that is provided. It is possible for a child to have the

capability to attend school and the desire to consume the meal, but not to have the capability to consume the MDM. Consequently, in Section 9.4.2, I examine the factors that determine MDM implementation.

9.3.2 Exclusion

Three groups of children are excluded from the MDMS: children above grade VIII, children attending non-eligible schools and out-of-school children. It is not the case that these excluded groups are selected to 'let die' due to an inherent prejudice. Nonetheless, they are still 'let die'; left to experience hunger, malnutrition and food insecurity and consequently to live 'short and limited lives' (Li, 2010: 1). I do not believe that this situation can be aptly described using the language of structural violence as Gupta (2012) does. Certainly, structural violence is at play, as existing social structures result in 'unequal power and... un-equal life chances' (Galtung, 1969: 171), particularly for out-of-school children. However, if we accept that the state has an obligation to fulfil the right to food, then responsibility for exclusion must too lie with the state. Echoing Harriss and Jeffrey's (2013) opinion of Gupta's use of the term structural violence, applying it to this situation would be depoliticising. By failing to ensure that all those without the means for fulfilling the right to food are covered by social protection schemes (the MDMS or otherwise), the state must be considered to be letting people die. Gupta's characterisation of violence existing alongside care does however apply. The non-rights or need based targeting procedure results in care for some, and unequal life chances for others. The absence of a MDM is a corrosive disadvantage, affecting educational and nutritional status and future capabilities and freedom.

Thus, exclusion in the MDMS takes two forms; exclusion from the scheme as determined by eligibility criteria and exclusion within the scheme, determined by the conditionality on school attendance as well as by irregular implementation and discrimination. The targeting procedure and attachment of conditionality, as well as the persistence of implementation-derived exclusion are thus at odds with a rights-based approach. The GOI recognises the right to food for all and denies it for some children.

9.4 Duty-Bearers

9.4.1 The plurality of duty-bearers

I have shown that a vast number of actors have a duty in the MDMS, including officials within all levels of governments, actors at the school-level and external actors who guide implementation. As outlined in Chapter 4, most actors have perfect obligations, meaning their duties are clearly defined. The community, however, does not have a perfect obligation in the MDMS. Although there are suggested means through which the 'community' may be involved with the MDMS, specific duties are not specified. I have also shown that an additional actor is involved in the MDMS; the private sector. Although PPPs in the MDMS are between governments and NGOs, I have shown that the

private sector plays a role in facilitating PPPs. These actors are not official duty-bearers in the MDMS and their responsibilities towards the scheme and the right to food more broadly are unspecified.

9.4.2 The Fulfilment of Entitlements

Research question 1.iv asked what the norms in the MDMS are, whether they are fulfilled and the reasons for fulfilment or non-fulfilment. In Chapter 4, I showed that rights-holders are entitled to a MDM that adheres to: the calorie and protein content specified in the NFSA; the GOI's norms on the quantity of ingredients and the state government's menu. For the fulfilment of a right to food, rights-holders must have access to food that is sufficient in quantity and quality, is safe, reflects preference and is culturally acceptable. In Chapter 6, I examined the extent to which these norms were realised in practice. I showed that the menu was often not adhered to and that the quantity and quality of the MDMS was often inadequate. Often rights-holders did not receive their full entitlements. I have also shown that although safety was not a large problem in the study area, it is a problem in both the centralised and decentralised delivery models.

The non-fulfilment of entitlements results from gaps in the pattern of claims and duties outlined in Figure 4.13. The findings presented in the empirical chapters show that the capacity of teachers and cooks to fulfil their duties in the MDMS is often limited. Thus, the empirical evidence supports Jonsson's assertion that 'rights are violated because claim-holders lack the capacity to claim the right, and/or duty-bearers lack the capacity to meet their duties' (2003: 54). The capacity of teachers and cook to fulfil their duties is determined by structural factors which determine the balance between demands and enablements (see Section 7.7). Demands are the formal requirements determined by policy which were outlined in Chapter 4 and the informal demands from the public. Enablements are determined by a range of factors including financial and human resources and timing. Often in the MDMS, the former is greater than the latter, resulting in a public service gap. In this context, teachers and cooks are forced to exercise discretion and agency to cope.

The design of the MDMS produces further problems for the meeting of demands. Reflecting Gupta (2012) the decisions made by higher-level officials concerning programs and targets 'that bear little relevance to realities on the ground' leads to 'subordinates faithfully executing programs on paper but caring little for how well they are implemented' (48). In particular, I have shown that the norms on quantity and the type of food mean little in practice. In the centralised model, the number of children consuming the MDM each day is unknown. In both models, the food is not weighed before serving and lower and upper primary students do not receive uniformly different amounts. Norms of quantity and protein content mean little to inadequately trained cooks and teachers. The MDMS is designed with a focus on the individual; yet is not implemented with the accuracy required to ensure that

individuals always receive their entitlements. Consequently, the focus of implementation is the provision of a meal, not the provision of a meal that adheres to guidelines.

Similarly to how the capability approach framework considers capability and freedom, for duty-bearers at the school-level one can also distinguish between the MDM they are capable of providing and the MDM that they choose to provide. This framework is illustrated in Figure 9.2. Although the design of the MDMS does not permit much discretion (the menu and quantities are set), in practice discretion is necessary. For example, inadequate and delayed funding and a lack of access to markets results in teachers and cooks adopting coping strategies. The absence of effective monitoring expands the opportunity for discretion. Teachers and cooks therefore have a *de facto* room for manoeuvre, and consequently make the MDMS. This can be a positive, permitting needy children to consume the meal. Or, more negatively can result in corruption. The influence of both structure and agency is seen for example in the vignettes of corruption found throughout this thesis. Acts of corruption by CCHs may be a response to their inadequate payment and unmet food needs at home, or in other cases may result from teachers prioritising their own interests over those of their students.

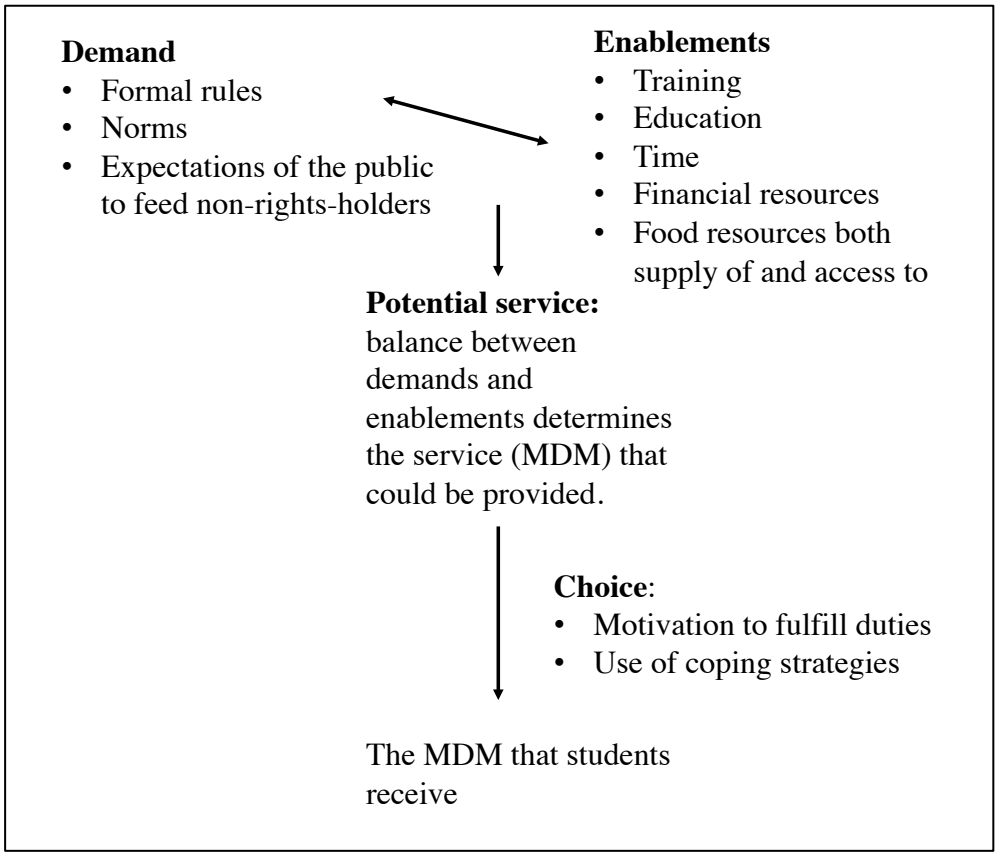


Figure 9.2: The fulfilment of duties by teachers and cooks in the MDMS

In consequence, the implementation of the MDMS varies considerably between schools and by location, as has been shown throughout the empirical chapters.

9.4.3 Arbitrary Decisions?

As reviewed in Section 2.2, Gupta (2012) considers the actions of low-level officials to produce arbitrary outcomes, causing differentiation in the services received 'by clients who are in similar structural locations... who have very similar endowments of economic, social, educational, and cultural capital' (24). These decisions are not based on logic and ultimately cause bureaucratic action to 'repeatedly and systematically' produce 'arbitrary outcomes in its provision of care' (*ibid*: 6). In light of the empirical evidence presented in Chapters 5-8 and the analysis above, I do not consider Gupta's concept of arbitrary decisions to be particularly helpful in analysing the MDMS. I agree with Gupta that decisions made by low-level officials including in the context of the MDMS are a strong determinant of outcomes. Understanding these decisions and the overall behaviour of street-level bureaucrats, is a vital part of understanding how policy is implemented. However, in the MDMS these decisions are not arbitrary, but are based on choices determined by some combination of capacity, motivation and personal interests. Moreover, the MDM does not lead to differences between those with similar endowments in the same manner as Gupta finds. Children at one school receive the same MDM as each other. Children with similar endowments at different schools may receive significantly different meals; however, this is not the product of arbitrary decisions. Rather, there are patterns in the implementation of the scheme.

Harris and Jeffrey (2013) argue that instead of being arbitrary, bureaucratic functioning 'systematically reflects class, caste and gender privileges' (519). To this, I would add the importance of location. Location is itself connected to privilege; those living in remote locations are often from STs and are poor. In Chapters 3 and 5, I showed spatial variations in need; the more remote locations typically had a lower level of 'development', experienced higher levels of food insecurity and thus had a greater need for direct food provisioning from the state. In Chapter 6, I showed that these locations typically had the 'worst' performing MDMS, characterised by irregular provision and inadequacies in the quantity and quality of the MDM. One can therefore consider location to be a corrosive disadvantage (Wolff and de Shallit, 2007). In remote locations, access to the market is difficult, affecting the capacity of teachers to provide food as per the menu. These teachers are also likely to be the only teachers employed, further reducing their capacity to provide the MDM as per the norms. Remote locations are also less likely to be visited by officials and parents in such locations are less likely to report problems. In the absence of both internal and external accountability, personal accountability remains. These problems should not be seen as inevitable and used as 'escape hatches' to explain the

problems in the MDMS. Rather, they highlight problems in the allocation of duties and resources in the MDMS.

Thus, the variations in the implementation of the MDMS should not be interpreted as the product of arbitrary decisions, but rather as the almost predicable outcomes of variations in demands and enablements and accountability.

9.4.4 Street-level Bureaucrats

In the MDMS, teachers at eligible schools can be classified as street-level bureaucrats. Following Lipsky's (2010: 13) definition, these actors can determine 'the nature, amount, and quality of benefits and sanctions provided by their agencies' and have 'relative autonomy'). Moreover, their working conditions typically meet several of the common conditions of work which Lipsky identified: resources are inadequate relative to the task; the goals of agencies are often ambiguous; performance related to goal achievement is difficult or impossible to measure. In these working conditions, teachers must employ coping mechanisms. It should be noted that all teachers are not automatically street-level bureaucrats; as Lipsky intended, the term only applies to those who meet the aforementioned conditions.

Classifying CCHs as street-level bureaucrats, however, is less straightforward. I have shown that CCHs can also shape the MDM provided and are forced to use coping mechanisms. CCHs also *make* policy. Yet, crucially many CCHs lack the authority and discretion that is central to the definition of a street-level bureaucrat. For example, some CCHs may decide to cook a certain meal because it is easier for them, others will cook a simpler meal because of the ingredients made available to them and others will be forced to follow the instructions of the teacher. Thus, typically CCHs cannot be classified as street-level bureaucrats; however, the street-level bureaucracy literature is still useful for examining their work due to the focus on demand and enablements.

9.4.5 PPPs

PPPs in the MDMS are used as a fix for problems (Linder, 1999). The centralised kitchens used by NGOs in PPPs contrast starkly with decentralised kitchens (Section 6.4.3). PPPs in the MDMS are thus seen as a fix for the poor implementation of the MDMS by teachers and cooks, rather than as a fix for problems caused by inadequacies in the design of the MDMS and the inaction and non-fulfilment of duties at all levels of government. I have shown that the narrative of success that surrounds the involvement of NGOs in the MDMS is not always justified. In Chapters 6-8, I have shown problems in the quantity and quality of the food provided by NGOs. I have also shown that

contrary to the statement made by Drake *et al*. (2016), that Akshaya Patra have promoted 'community participation through fundraising and volunteering', community participation is restricted by the centralised model.

The non-fulfilment of duties by NGOs cannot be explained in the same way as teachers and CCHs. NGOs have considerable resources at their disposal and are thus not limited by the same structural constraints. The same public service gap does not prevail. Rather, the nature of the MDM provided by NGOs is determined by the will and interests of NGOs and the power dynamics between district and state-level governments and NGOs. I have shown that although NGOs may be held to account for their actions, external and internal accountability in the NGOs are typically limited.

Contrary to the assumptions that the involvement of NGOs can fix the problems in the MDMS, this research has shown that NGOs are far from being a 'magic-bullet'. The involvement of NGOs in the form of PPPs can have negative consequences and be at odds with a RBA. Yet, the GOI continue to advocate the involvement of NGOs and the large NGOs continue to expand their operations. Of concern, in June 2017, the MHRD issued a notification permitting NGOs running centralised kitchens to supply the MDM 'in identified rural areas which have good road connectivity'(2017: 1). This thesis has indicated the problems with NGOs supplying food in rural areas, including for safety, employment and participation. Further research is required to understand the consequences of NGO involvement in the MDMS, particularly in rural areas.

9.4.6 The Community

The GOI expects the community to be involved in the MDMS (Section 4.6.5). In the study area, all types of community involvement in the MDMS were minimal. Drawing on Jonsson's (2003) HRBAP, I have shown that members of the community may not accept responsibility for the MDMS, as they may not know that they should do something, or they may not have the authority to do anything. For example, members of SMCs may be unaware of their membership or may not be given the opportunity to exercise authority. Formal means through which parents and other members of the community may be involved did not exist in the study area, resulting in an absence of awareness of responsibility.

Echoing the emphasis Jonsson places on the community in the realisation of child rights, I have highlighted that parents affect the realisation of a right to food by affecting school attendance and, on occasion, by stipulating whether their child can consume the MDM. Parents therefore influenced the capabilities of children. Therefore, the 'community' have a role in the realisation of rights far beyond their involvement in the delivery of social protection schemes.

9.4.7 Summary

Following Jonsson, the realisation of rights depends on the capability of students and the capacity of duty-bearers. The influence of the two can be conceptualised as shown in Figure 9.3

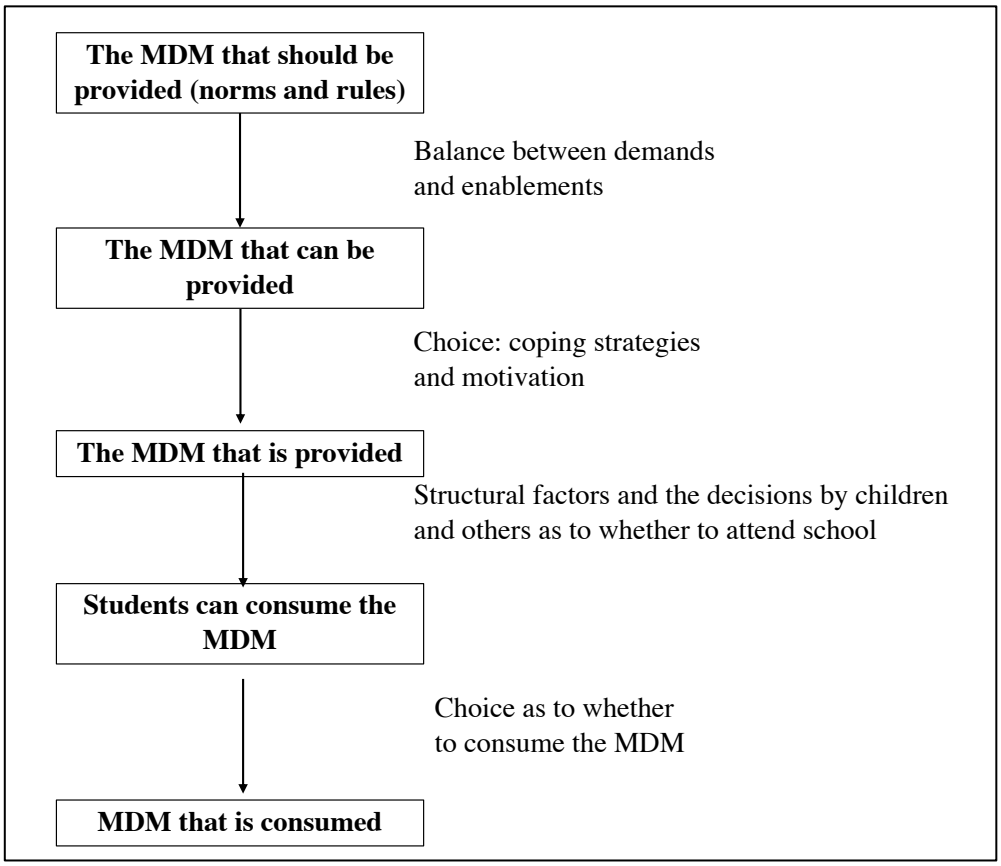


Figure 9.3: The realisation of a right to the MDM

The MDM that rights-holders have the opportunity to receive is determined by the balance between demands and enablements and agency. Importantly, this is determined by the design of the MDMS and the actions of all levels of government; it is not the product of low-level officials failing to implement schemes perfectly. Whether children can realise their right to the MDMS is determined by capability and agency. Whether the MDM that is consumed can then lead to the functioning of being well-nourished depends on the quality of the MDM, the dietary needs of children and their ability to utilise the food they consume.

9.5 Accountability Mechanisms

I have shown that the existence and use of accountability mechanisms in the MDMS are a long way from the ideal accountability mechanisms outlined in Section 2.6. In Chapter 8, I showed the inadequacies in the internal accountability in the scheme. These indicate the need for second-order accountability in the MDMS (Schedler, 1999). I have also shown the limits in NGO accountability to both patrons and internally to the NGO themselves. In the absence of effective internal accountability mechanisms, the role of 'personal accountability', when accountability is driven by one's moral values (Sinclair, 1995), is heightened. In this setting, the agency and motivations of internal actors, whether government officials, NGOs or teachers have a greater influence on the implementation of the MDMS.

In Chapter 8, I showed that external accountability from the representatives of rights-holders was limited. Firstly, the MDMS can be characterised by low exit and voice. The nature of the service delivery prevents exit, whereas third dimensional, invisible and structural power dynamics can prevent the representatives of rights-holders from exercising their voice (see Section 8.3). Drawing on the language of the capability approach once again, it is thus clear that for accountability 'from below' to occur, the representatives of rights-holders must have the capability to use an accountability mechanism. This capability is determined by both the availability of mechanisms and awareness of them. A choice must then be made to use this mechanism and exercise their voice. Both the capability and the choice depend heavily on power dynamics between parents and other actors, principally teachers.

Secondly, when external actors attempt to hold duty-bearers to account, accountability is directed towards teachers as these are the street-level bureaucrats. Teachers may be the only representative of 'the state' in a village. Yet, as has been discussed, the capacity of teachers to fulfil their duties is heavily influenced by the decisions and actions of other duty-bearers in the government. Therefore, holding teachers to account may not address the root of problems. Thus, even if parents have the capability and choice to complain, without an effective accountability mechanism this may not lead to change.

Despite the limitations in accountability in the MDMS, I have also shown that actors are held to account. Contestation can and does occur. The key example of this is the complaints made by parents and teachers about the Naandi Foundation in Girwa and the subsequent decision of the district government to cease the partnership with the organisation. Thus, some parents have power to resist.

9.6 Additional Principles

A rights-based programme must also encompass rights into the process (Jonsson, 2003). The second research question therefore asked the extent to which rights-based principles (participation, accountability, non-discrimination, transparency, human dignity, empowerment and the rule of law) are incorporated into the MDMS. Here I discuss these principles minus accountability which has already been explored.

In Chapter 4, I showed that these principles are reflected in the design of the MDMS, even if they are not discussed explicitly as 'rights-based principles'. Yet, I have shown that these principles are not necessarily reflected in the implementation. In Chapters 7 and 8, I showed that the "community" often lack the opportunity and capacity to participate in the MDMS. Transparency in the scheme is marred by inaccurate and insufficient data at all levels and the non-display of the menu in schools. In Chapter 8, I showed that the rule of law is used in 'untoward' incidents; however, the NFSA was not found to be used to hold actors to account, particularly in the case of NGOs operating in rural areas. The adherence to the principles of human rights has also been shown to be affected by design choice. In particular, the involvement of NGOs has been shown to reduce transparency, complicate accountability and to limit participation and empowerment.

Empowerment in the MDMS is expected to occur through the employment of women from traditionally disadvantaged groups (SCs and STs and widows) as CCHs. Yet, the conditions of employment prevent empowerment from occurring. Drawing on the work of Palriwala and Neetha (2009, 2010, 2011), I have suggested that 'gendered familialism' plays out in the MDMS as well as the ICDS. Further research which focusses on both the everyday experiences of CCHs and how they are perceived by other-duty bearers is required. In particular, a multi-state study which considers experiences in states where CCHs are paid a higher wage would be particularly insightful. Research into the impact of the transition from decentralised to centralised delivery on CCHs is also necessary.

One principle has been absent from the discussion in the empirical chapters: human dignity. Typically, dignity is treated as 'an intuitive notion that is by no means utterly clear' (Nussbaum, 2011: 29). Indeed, the NFSA aims to provide access to food 'to live a life with dignity', yet, at no point in the NFSA or in the guidelines on the MDMS is the concept of dignity expanded upon. It is thus necessary to further consider human dignity in the context of food provisioning. Kent (2005) conceptualised dignity in the context of a right to food. Kent draws on the assertion in Comment 12 that the right to food is more than a 'minimum package of calories, proteins and other specific nutrients' (CESCR, 1999: paragraph 7). Kent (2005) argued that human rights are about 'upholding human dignity, not about meeting physiological needs' (46) and goes on to state that:

> Simply delivering pre-packaged meals in the way one might deliver feed pellets to livestock cannot fulfil the right [to food]. That sort of approach would be incompatible with human dignity. Delivering such meals might be sensible in a short-term emergency, but it cannot be a means for realizing the human right to adequate food in the long run. (55)

Kent also argued that for dignity people must have the opportunity to have one's voice heard, through institutionalised recourse mechanisms.

This study indicates that human dignity includes ensuring the provision is not stigmatised or seen as for the 'poor' and an act of charity, but is seen as a right. Human dignity involves ensuring that rights-holders and their representatives have their voices heard, enabling them to access their entitlements, rather than face the consumption of unpalatable food. Human dignity also involves ensuring that rights-holders can consume the meal in a dignified manner; for example not consuming the meal from scraps of paper as at school 13 (Section 6.4.2). It should not be the case that the 'hungry can't be choosers'; those in need should be seen as rights-holders, entitled to adequate and acceptable food. Rights-holders and their representatives therefore should be able to exercise control over the food they consume and not be treated as passive recipients.

9.7 A Rights-Based Approach?

In the MDMS, there are two rights. The first is the right to a MDM established by the Supreme Court Orders and the NFSA. The second is the right to food, recognised by adherence to international declarations and within the Indian constitution. The overarching aim of this research was to explore the everyday realisation of rights in the MDMS.

Recognising that there is not a single RBA, one must consider what a RBA looks like in the MDMS. As outlined in Chapter 4, the NFSA, the MDM Guidelines and national orders and notifications outlined who the rights-holders are, what they are entitled to, who the duty-bearers are and the duties that they have. The importance of accountability mechanisms is also recognised, although these are less clearly defined in national-level documents as they are expected to be designed at the state level. Rights-based principles are also incorporated into policy, even if the right to food is not explicitly mentioned.

The design and implementation of the MDMS does not, however, always reflect a commitment to rights. Most significantly, those excluded by the targeting procedure and the conditionality of school attendance are not covered by any other scheme and therefore the state does not fulfil their right to food. Although the MDMS is importantly a legal right; rights are only partially reflected in the scheme itself.

I have also shown that entitlements are often not realised due to limits in the capabilities of rights-holders to realise their rights and the non-fulfilment of duties. I have shown that this stems from problems in both the design and implementation of the MDM.

The potential of the MDMS to contribute to the realisation of the right to food is limited as the scheme is not designed to address the multiple causes of malnutrition and food insecurity. As Schaffer argues, a dichotomy between policy and implementation obliterates the 'need or occasion for discussing or bringing to account, all aspects of the actual construction of policy practice' including allocations and calculations, strategies, therapies and other technologies, 'which would be highly doubtful…were they ever brought to question' (160). By examining the MDMS as public policy, I have shown that in its present form the capacity of the MDMS to realise the right to food is highly doubtful. First, targeting and conditionality means that the scheme does not provide food for all school children in need, with evident negative implications for excluded children. Second, the scheme does not meet needs during school vacations in non-drought-affected areas; with negative implications for the food intake and experiences. Third, the design and implementation of the scheme is detached from the actual and dietary needs of children, which raises uncertainty as to the capacity of the scheme to fulfil dietary needs. Finally, the GOI pays insufficient attention to the determinants of food security beyond access to food.

The GOI and state governments are officially committed to 'making live', but inadequacies in the strategy and the allocation and distribution of resources means that children continue to be 'let die'. Some continue to face malnutrition and food insecurity due to the absence of the state whereas others continue to face the same problems due to inadequacies in the care that they receive.

Overall, this thesis has shown that although the MDMS is firmly rights-based, in its present form the right to entitlements in the MDMS are often unfulfilled and the right to food remains far from realised.

9.8 Looking Ahead

The findings presented in this thesis provide insight into the implications of potential changes in the MDMS. Here, I discuss three. First, several politicians have proposed that the MDMS should be replaced with pre-packaged food, beginning with Chief Minister Mayawati of Uttar Pradesh in 2007, followed by the Minister for Women and Child Development Renuka Choudhary in 2008 and the food processing minister Harsimrat Kaur Badal in 2014 (Mukul, 2014; Sethi, 2008; Vishnoi, 2016). In 2016, the Chief Minister of Rajasthan, Vasundhara Raje, wrote to the MHRD with a proposal to introduce pre-packaged food into the MDMS. The Chief Minister requested the amendment of the MDMS Rules, which specify that 'hot cooked food' must be served (*Times of India,* 2016b). Although the MHRD did

not accept these proposals, some state governments or at least some officials within them evidently wish to introduce pre-packaged food in the MDMS. These proponents of pre-packaged food perceive it as more hygienic and more nutritious than the hot-cooked meal and thus a technical solution to the scheme's problems (Vishnoi, 2016). While it is unclear exactly what form the packaged food would take, one can envisage numerous challenges in its provision. For example, a shift to pre-packaged food would render schools entirely dependent on delivery and there would still be the potential for the food to be unhygienic and unsafe as the meal would require cooking or heating.

The proposed shift to pre-packaged and processed food in the MDMS would most likely involve large private companies producing the food. Reflecting the discussion in Section 7.6.5, there are increasing links between the government, the private sector and NGOs. For example, in May 2017 Akshaya Patra held an event to launch the movement 'Nourish India, Educate India', at which the key guests included the Minister for Women and Child Development, Maenka Gandhi, and representatives from Nestlé, Pepsico and GlaxoSmithKline (Kaul, 2017). At the event, Maneka Gandhi argued that food for malnourished children should be considered medicine (not food) and that young children in the ICDS should be provided with high-calorie nutrient sachets which contain crushed peanuts and sugar alongside fortified biscuits (*Financial Express,* 2017; Sampath, 2017). The provision of pre-packaged food would likely turn the MDMS into a profit-making scheme for private companies. The lines between charity, business and rights therefore look to become increasingly blurred.

Moreover, as has been reiterated throughout this thesis, the realisation of the right to food is about more than nutrition; qualitative adequacy, preference and cultural appropriateness are extremely important. It is difficult to see how the provision of pre-packaged food could account for local variations in preference and culture. The provision of pre-packaged food also raises concern for dignity (Kent, 2005). Overall, seeing food as medicine directly counters how food is perceived in a RBA.

Second, the GOI is planning to introduce fortified wheat and oil and double iodised salt into the MDMS and other food-based schemes by December 2019 (Dhawan, 2016; Mitra, 2017). Although fortified food is already provided in some states, this is the first nation-wide introduction. According to the Food Safety and Standards Authority of India who launched the plan with the Ministry of Women and Child Development, fortification is intended to 'fill the gap' between micronutrient intake from food at home and needs (Mitra, 2017). The move to consider the micronutrient content of the MDMS and the needs of the rights-holders is, on the one hand, welcome. As has been shown, the GOI have not sufficiently considered micronutrients in the MDMS. On the other hand, there is reason for caution. In this thesis, I have shown the uncertainty surrounding the levels of child malnutrition in India and the nutritional content of the MDMS. Accurately 'filling the gap' in micronutrient needs would therefore require the

GOI to conduct extensive research on the nutritional status of children and the nutritional value of the MDM. Without such research, fortification would, just like the MDMS, be an indefinite attempt to meet unspecified needs.

Taken together, the proposed move to using pre-packaged food and the policy to fortify food in India's food-based schemes, can be interpreted as increasing nutritionism within food policy in India. Nutritionism is the paradigm in which food and its relationship with people is defined only by nutrients (Scrinis, 2002; 2008). Kimura (2013: 164), drawing on Scott (1998), argued that nutritionism, 'helps one to "see like a state." It makes a complex food problem legible, manageable, and controllable by simplifying it into a matrix of biomedical parameters'. Maneka Gandhi's call to see food as medicine renders food as no more than the sum of its nutrients; the 'layered meanings and values that go well beyond nutritional properties and contributions to physical well-being' (Kimura, 2013:3) are ignored. Both pre-packaged food and fortified food are a technical and apolitical approach to malnutrition in India and to the problems in India's food schemes. Pre-packaged food presents a means of addressing the problems in the MDMS without tackling any of the causes, including an inadequate budget, inadequate infrastructure and inefficient monitoring, which require a critical consideration of the actions of the GOI and state level governments. In this approach, the definition of needs would become even further detached from the actual and perceived needs of rights-holders.

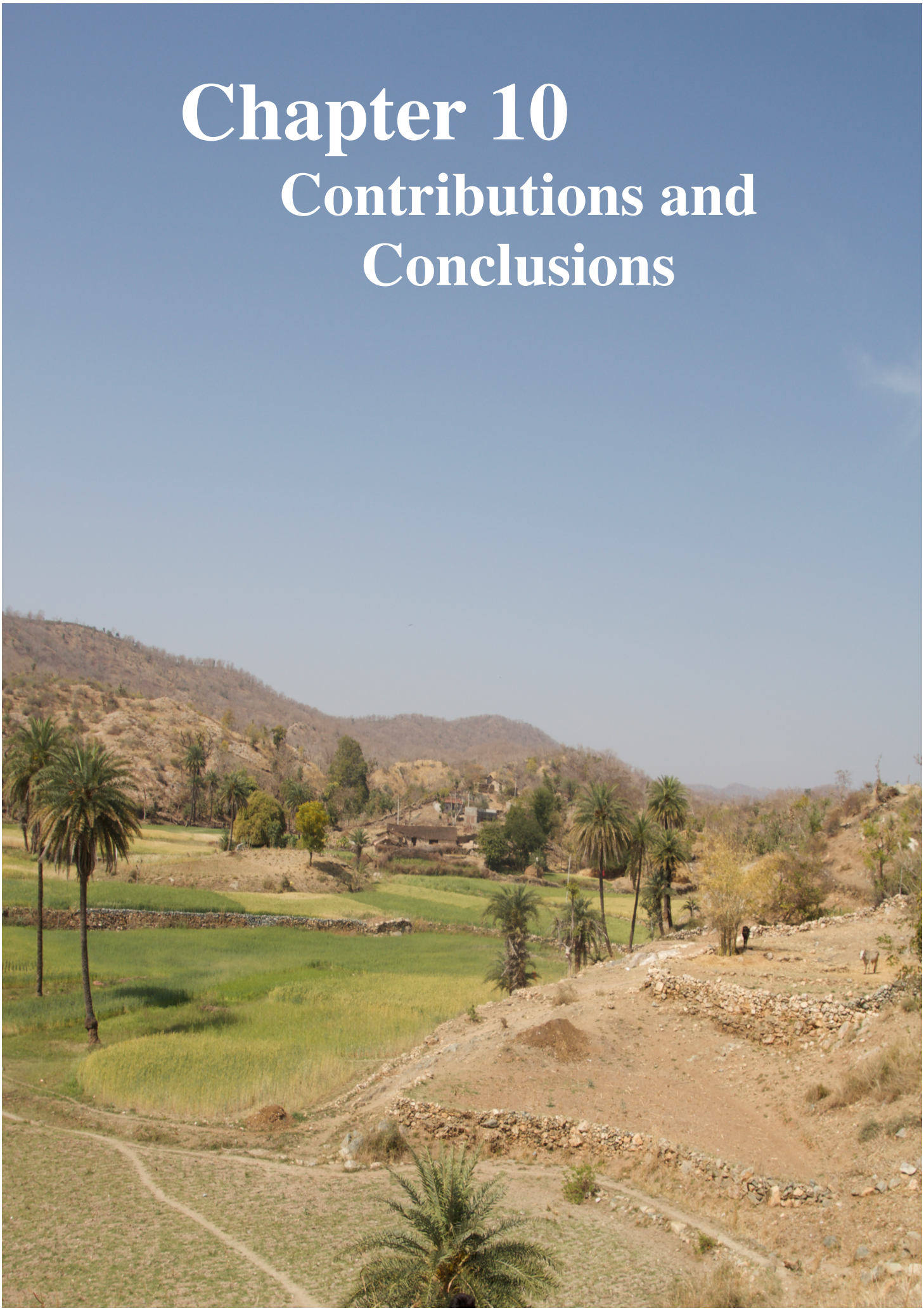
Finally, on 28 February 2017, the GOI issued a notification that linked the MDMS to *Aadhaar*, India's biometric identification system. In the notification, the GOI stated that: 'Individuals desirous of availing the benefits under the [MDM] Scheme offered at the Schools are required to furnish proof of possession of Aadhaar number or undergo Aadhaar authentication' (GOI, 2017). Children not registered in the *Aadhaar* system and thus not in possession of an *Aadhaar* card will not be entitled to receive the MDM. The notification also stipulated that CCHs must be registered under the scheme to be employed. Other schemes in India, including the PDS have also been linked to *Aadhaar*.

The rationale for linking the MDMS to *Aadhaar* is improved delivery and transparency: the notification states that the link to *Aadhaar* 'simplifies the Government delivery processes, brings in transparency and efficiency, and enables beneficiaries to get their entitlements directly to them in a convenient and seamless manner' (GOI, 2017). Implicit in this statement is the assumption that *Aadhaar* can prevent corruption in the MDMS and that the problems in the MDMS stem from a lack of transparency and efficiency. It is, however, difficult to see how forcing children and CCHs to register under *Aadhaar* would address any of the problems in the MDMS indentified in this thesis.

The link between the MDMS and *Aadhaar* has been opposed (e.g. Bhatty and Sinha, 2017; *Economic and Political Weekly,* 2017; *Hindustan Times*, 2017; Khera, 2017) for several reasons. Firstly, linking *Aadhaar* and the MDMS is practically problematic as it requires the biometric system to work and to be accessible to all. Yet, authentication failures are common, estimated to be 37% in Rajasthan (Yadav, 2016). In fact, the study block of Kotra made the news as people had to climb trees to get the signal required to validate their biometric information to access the PDS (Pillai, 2017). This raises the question of what happens if children cannot register due to authentication problems; if they do not have the capability to register. Second, the use of biometric data raises issues regarding the privacy and consent (Bhatty and Sinha, 2017). Third, linking *Aadhaar* and the MDMS is wholly problematic from a rights-based perspective. Any initiative which denies the right of eligible children to a MDM is against the orders of the Supreme Court, the NFSA and the overall duty of the state to fulfil the right to food. Thus, research which explores the impact of *Aadhaar* on the realisation of rights is required.

These changes in policy on the MDMS and India's other food-based schemes look set to have significant implications for the realisation of a right to food. There is consequently the need for continued research on the task of realising a right to food in India.

Chapter 10
Contributions and Conclusions



Chapter 10

Contributions and Conclusions

10.1 Empirical Contributions

To examine the everyday realisation of rights in the MDMS, I undertook fieldwork across four blocks in Rajasthan. I devised a mixed-methods research design which generated extensive quantitative and qualitative data, including more than 700 household surveys, 349 student surveys and 83 interviews. My research is therefore based on a larger sample of households and students than most studies of the MDMS (see Appendix B.9). The fieldwork also covered a greater geographical area than most studies of the MDMS. Furthermore, this research did not focus on single issues such as changes in enrolment or attendance as is typical in studies of the MDMS, but took a far broader approach to explore the design and implementation of the scheme. This is the first study which has thoroughly explored the scheme from a rights-based perspective.

From this extensive research, I have provided a comprehensive and detailed insight into the MDMS. These insights were discussed in detail in the previous chapter. Overall, I have uncovered the complexities in the realisation of rights in the MDMS. In doing so, I have provided a detailed insight into the background of rights-holders and have contributed new insights into the food needs of rights-holders and the processes of inclusion and exclusion in the MDMS. I have also provided original insight into the actions of duty-bearers and the existence and use of accountability mechanisms in the scheme. I have provided the first detailed insight into the involvement of PPPs in the MDMS and have shown that the narrative of success that surrounds the involvement of NGOs does not reflect reality.

10.2 Methodological Contributions

In this thesis, I have introduced a new way of examining rights-based social protection schemes, which considers the components of a rights system both on 'paper' and in practice alongside the extent to which rights-based principles are adhered to and rights are realised. I have examined all three stages of the policy process as described by Schaffer (1984): the setting of agendas, proceduralisation and the allocation of resources, as well as the distribution of resources (Harris, 1991). Put more simply, I have examined who is supposed to get what in the MDMS, whether this occurs and what determines the provision and realisation of entitlements. To do this, I have taken a realisation-focussed approach to rights, 'looking outwards from the lived realities of people, so that analytical efforts are anchored to their substantiation, not their promise' (Pritchard *et al.*, 2014: 8). This approach has included examining the experiences of rights-holders and their representatives as well as the experiences of duty-bearers, particularly teachers and cooks. The empirical insights generated show the value in adopting this approach.

This research also provides insight into conducting research with children. The importance of considering the views of children in research has been increasingly recognised (see Section 3.3.7). Kent (2010) specifically argued the need for the views of children to be considered in discussions of rights-based SFPs. My research confirms the importance of doing so. I have shown that children are capable of providing detailed insights into SFPs. Furthermore, I have shown that as their views affect MDM consumption, one must gain insight into their views to understand rights realisation. I have also shown that essays and surveys are valuable methods to assess the views of literate children and can be used successfully in India. I have also shown that children, especially older children, are capable of reporting their own food consumption and therefore that 24-hour food-consumption recall is a valid measure to use with children.

I have also used a novel multi-method assessment of food security, which combines qualitative and quantitative methods. In doing so, I have shown the value of using the FCS and the HFIAS in India. I have, however, also shown the limits and problems in applying the FCS method in South Asia, particularly the problems that arise from milk consumption. I have also confirmed that food and food security are personal and subjective and therefore need to be studied through qualitative measures. I have shown that surveys, focus groups and interviews are appropriate methods to do so.

10.3 Theoretical Contributions and Conclusions

10.3.1 Operationalising the Capability Approach

Much of the academic discussion of the capability approach is theoretical. Here, I focussed on capabilities in practice. I sought to examine the MDMS using the capability approach and in turn reflect on what the analysis of the MDMS might add to the approach. The capability approach proved a useful means of considering whether and why children with a right to consume the meal do so. Drawing on Robeyns' (2005) characterisation of the flow from goods to functionings, I showed that to realise the right to the MDMS, children must have the capability to do so and then must choose to do so. I propose that whether the consumption of the MDM could lead to the functioning to be food secure and well-nourished depends on a number of different factors, including the quality of the MDM served and the child's health.

Taking this further, the capability approach provides useful language with which to describe the processes that determine whether having a right leads to the achievement of functionings. Adapting the conceptualisation of the approach by Robeyns (2005), I propose that the following provides a useful basis for the analysis of the links between rights-based social protection schemes and functionings.

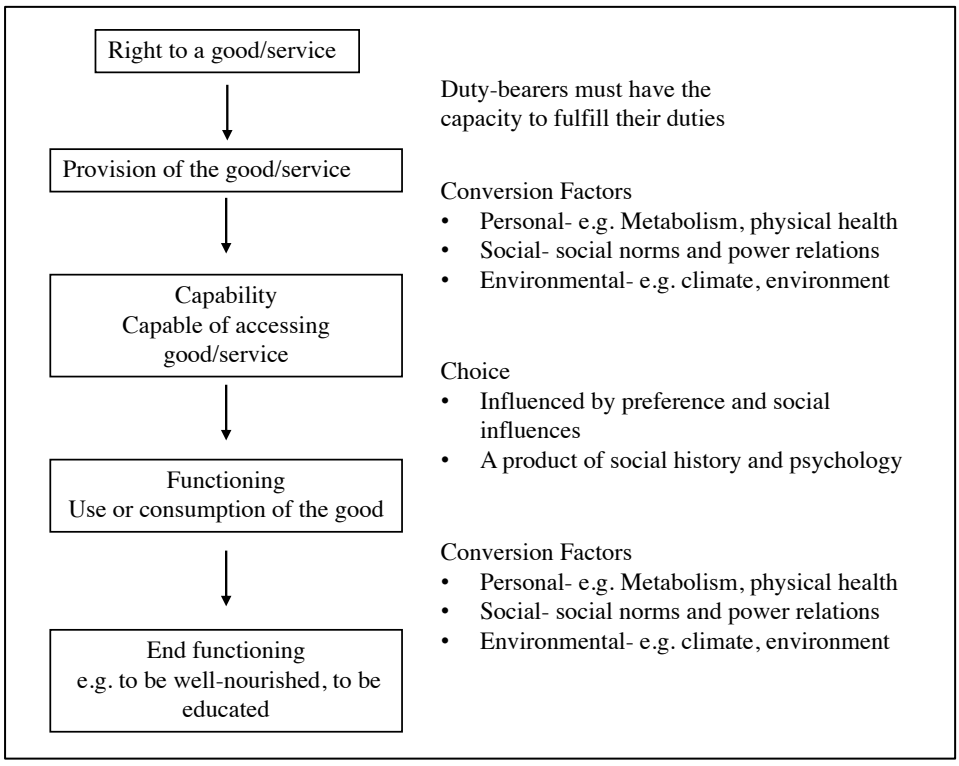


Figure 10.1: Conceptualisation of rights-based social protection schemes

This approach firstly allows researchers to consider the gaps between rights and realisation more carefully. In particular, it forces one to consider rights-holders as agents and as actors within wider structures. Secondly, the above introduces the consideration of individuals and social variability which is central to the capability approach (Crocker, 2008) into the analysis of social protection. Thus, when applied to a scheme such as the MDMS, the capability approach enables one to make sense of patterns of consumption and to explore how these might vary depending on existing inequalities and power relations.

The approach shown in Figure 10.1 could be applied to other SFPs. For example, from Poppendieck's examination of the school lunch programme in the US, it is clear that typically students had the capability to consume a school lunch, but many chose not to, prioritising taste and social acceptability over accessing a free meal. Evidently, the functioning of being well-nourished may not always be prioritised. The approach might also be applied to other social protection schemes in India and elsewhere. For example, in the TPDS, one might ask whether eligible recipients have the capability to receive their full entitlements from the ration shop, whether they choose to do and what determines both capabilities and choice.

The capability approach adds to the conceptualisation of rights by forcing one to focus on multiple capabilities and rights. Rights exist simultaneously and may often be nested. For example, the right to a MDM cannot be realised without other capabilities and rights, such as to receive an education. Capabilities are also useful for considering how the provision of a social protection scheme might lead to a functioning. For example, in the MDMS it is clear that further capabilities and functionings beyond receipt of the MDM must be achieved for the MDMS to contribute to the functioning of being well-nourished. The capability approach highlights the plurality of capabilities and rights, broadening a rights-based perspective which might easily focus on a single right.

The additions to the conceptualisation of the capability approach by Wolff and de Shalit (2007) are also useful for thinking about rights. Although I hesitate to advocate the introduction of more phrases into the capability approach, their concept of secure functionings and Nussbaum's (2011) term 'capability security' adds an important temporal consideration to discussions of rights. Rights and the capabilities to realise them must be stable over time. Thus, approaches to realising rights must ensure temporal stability. The concepts of fertile functionings and corrosive disadvantages are also useful in analysing problems and solutions, for example, in characterising being well-nourished as a fertile functioning or location as a potentially corrosive disadvantage. Nevertheless, although enabling fertile functionings and dismantling corrosive disadvantages should be a consideration for governments, it is hard to see

how these could be the focus of government action as Nussbaum, (2011) and Wolf and de Shalit (2007) suggest.

The capability approach alone, however, is insufficient to examine the realisation of rights due to the focus on the opportunity rather than process aspect of freedom (Sen, 2002; 2009). For example, to draw on Kent's (2005) description again, delivering pre-packaged meals as one might deliver feed pellets to livestock may lead to the functioning of being well-nourished. The process, however, is devoid of dignity and participation. Furthermore, drawing on the influence of preference and taste on consumption of the MDMS found in this study, this form of delivery may affect whether students choose to consume the meal. Thus, alongside capabilities and outcomes, one must also consider the process and adherence to rights-based principles.

10.3.2 The Everyday Realisation of Rights

For a rights-based system to work, three conditions must be fulfilled: rights-holders must be able to claim their rights, duty-bearers must be able to fulfil their duties and accountability mechanisms must be in place to ensure that the duty-bearers can be held to account for the non-fulfilment of duties. By the end of Chapter 2, the complexity of this system was evident. From the findings presented in Chapter 4-8 and the analysis presented in Chapter 9, broader conclusions can be made about rights realisation.

First, for the right to food to be realised, all those without the means of fulfilling their own right to food must be covered by social protection schemes. These rights-holders must then have the capability to realise their right. Second, duty-bearers must fulfil their duties. This capacity depends on the balance of demands and enablements. Third, effective monitoring and internal and external accountability mechanisms must be in place to ensure that this capacity is enacted on and rights are realised. I have shown that the realisation of rights requires more than duty-bearers being held to account; accountability must be directed towards those responsible. Finally, careful attention must be paid to the nature of rights and whether the right to social protection is in line with broader rights-based objectives. For social protection schemes to lead to the realisation of a right to food, the entitlements they provide must collectively enable the realisation of a right to food.

Thus, for any rights-based social protection scheme, the following questions need to be asked:

1. Who are the rights-holders and are all those in need rights-holders?
2. Do rights-holders have the capability to realise their rights and what determines their c capabilities?

3. Who are the duty-bearers and what are their duties?
4. Do duty-bearers have the capacity to fulfil their duties and what determines this capacity?
5. What accountability mechanisms exist and are used and what determines their use?
6. Do these accountability mechanisms ensure the detection and correction of problems?
7. To what extent is the social protection scheme capable of fulfilling broader rights and leading to functionings?

To answer these questions, one must consider all stages of the policy process. The wider structures and influences on agency must also be considered. As part of this, I have shown the importance of taking a geographical approach to examining the realisation of rights. As Carmalt (2007: 80) states: the 'basic tenets of geographic analysis-physical access, the importance of local context, and viewing violations as deprivations of physical space—apply to human rights across the board'. I have shown empirically how these factors influence the realisation of rights and thus the importance of considering spatial as well as social and temporal variations in the realisation of rights.

10.3.3 The Potential and Pitfalls of Rights-based Approaches

As reviewed in Section 2.3.1, a vast amount of literature has focussed on the 'potentials' and 'pitfalls' of RBAs. This research has provided additional insight into several of these.

First, echoing the 'potentials' outlined by Hickey and Mitlin (2009), RBAs add clarity and rigour to the conceptualisation of both problems and solutions due to the emphasis placed on government responsibility. Even if one might consider the steps taken by the GOI to realise a right to food to be inadequate, the recognition of the right to certain schemes has ensured that the vast majority of India's poor receive some form of entitlements. When rights are legally recognised, development is transformed from the recognition that the state should do something, to the legal obligation that it must. I have shown, however, that numerous actors comprise the 'state' and that these actors do not necessarily share the same understanding of the purpose of social protection schemes. I have also shown that in practice numerous actors beyond the state affect social protection schemes. In the MDMS, NGOs have a perfect obligation to provide the MDM and the community and the private sector are involved in the implementation of the scheme, but do not have clearly defined perfect obligations. Moreover, non-state actors may not have an obligation, but may shape the realisation of rights. For example, parents may influence whether children can attend school and consume a school lunch. Thus, although the focus of RBAs is and should be the state, for the realisation of rights to occur, it is also necessary to understand how other actors affect the realisation of rights.

Second, a rights-framework provides a solid basis for legal challenges to government decisions. For example, rights can be (and at the time of writing are being) utilised to challenge the link between *Aadhaar* and social protection schemes including the MDMS. Once a right has been established, violations of this right can be legally challenged.

Third, in RBAs recipients become active claimants. Those receiving entitlements are not termed 'beneficiaries', but instead are rights-holders. Consequently, these rights-holders have a claim on duty-bearers. However, as Hickey and Mitlin (2009) identify, the agency of the poor and marginalised can be exaggerated. Indeed, in India the initial right to food case was conducted on behalf of the people of Rajasthan, not by them. As shown in this thesis, existing power dynamics combined with other factors such as education and awareness can limit the capability of rights-holders and their representatives to hold duty-bearers to account and to claim their rights. Thus, in RBAs, the capability of rights-holders to claim their rights and to hold duty-bearers to account should not be assumed.

Fourth, to ensure the fulfilment of rights, accountability mechanisms must be in place. However, I have shown the plurality of duty-bearers that may be involved in a scheme and the multiple levels and ways in which duties might be unfulfilled. This complicates determining blame and the process of accountability. In the MDMS, although accountability mechanisms focus on the schools, the actions of teachers and cooks exist within the wider structure of the demands placed on them and the enablements determined by the actions of the government at all levels. Thus, RBAs require not only that accountability mechanisms exist and can be used, but that these mechanisms are directed at those ultimately responsible for the non-fulfilment of rights.

Finally, RBAs are considered to politicise development. Problems are seen as the product of failures of duty-bearers and thus actions by duty-bearers are the solution. However, the politicisation of the problem does not automatically lead to politicisation throughout a scheme. Although the right to food case politicised the issues of malnutrition and food insecurity in India, politicisation cannot be assumed to have trickled down into the social protection schemes which resulted. I have shown that the MDMS is often implemented in a manner which depoliticises the problems the scheme is intended to address, the needs of rights-holders, the interpretation of needs and the problems in the MDMS itself. Rights-based social protection schemes and the political technologies and strategies states employ in them, should be examined and interrogated to the same extent as other development initiatives and public policy (reviewed in Section 2.8).

Overall, I consider the potentials of RBAs to far outweigh the pitfalls. Grounding SFPs and social protection schemes in RBA means that the existence of a scheme cannot be altered due to the whim of

governments or donor agencies. However, adopting a RBA is insufficient; conditions must be established to ensure that the right can be realised. Moreover, this process of realisation should adhere to the principles of human rights.

10.5 Realising the Right to Food

Increasingly, having access to adequate and acceptable food is recognised not as a privilege, but as a human right to be fulfilled primarily by the state. The potential for social protection schemes to contribute to the realisation of a right to food and the importance of grounding social protection schemes in rights have also been increasingly recognised. In this thesis, I have shown the value of rights-based social protection schemes and the value in examining social protection schemes from the perspective of a right to food. However, through examining India's school lunch programme, I have shown that the establishment of rights to social protection is just one part of the realisation of the right to food. For a right to food to be realised, social protection schemes must collectively be capable of fulfilling the right for those without the means to do so themselves. Duty-bearers must then fulfil their duties and rights-holders must be capable of realising their rights. Overall, this thesis has shown the need to go beyond accepting a scheme as 'rights-based' to consider the messiness of the everyday realisation of rights. As 'the right to food is fully in' (Eide, 2005: 91), there is a pressing need for further scholarship which explores the everyday realisation of a right to food through social protection schemes in differing contexts.

Appendix A

Hunger, Malnutrition and Food Insecurity

A.1 Hunger

Hunger refers to an inadequate intake of food relative to needs. The prevalence of hunger is most commonly determined using data from the FAO. The FAO estimate is based on a minimum calorie cut-off, approximately 1,800 calories, for 'light physical activity' (FAO, 2008). As has been widely discussed (e.g. de Haen *et al.*, 2011; Headey and Ecker, 2013; Hickel, 2015; Massett, 2011; Svedberg, 2000; 2008; 2011; 2013), the FAO methodology is imperfect. The figures are determined using potentially inaccurate national data and the estimation is based on only light activity. For example, the FAO (2015) estimate that 194.6 million people in India are undernourished (a term they use synonymously with hunger). However, many people in India require more than a minimum of 1,800 calories. For example, an average rickshaw cyclist requires between 3,000-4,000 calories per day (Hickel, 2015). Thus, it is likely that the number of hungry people in India is higher than the FAO estimate.

A.2 Malnutrition

A.2.1 Protein Energy Malnutrition

Protein-energy malnutrition (PEM) refers to an inadequate intake of food. Despite the name, individuals with PEM may have an adequate intake of protein, but due to an inadequate total intake of food, the protein is used as metabolic fuel (Bender, 2002). BMI is used to indicate PEM in adults using the established cut-offs listed in Chapter 2. BMI is calculated by dividing weight in kilograms by height in meters squared. BMI and the associated cut-offs are not without their limitations and are not universally accepted for all populations (see Burkhauser and Cawley, 2008; Mascie-Taylor and Goto, 2007). However, BMI is still widely used and, in lieu of a superior alternative, is reported in this thesis. In children under the age of five, PEM is indicated by height and weight-for-age and weight-for-height (Section 2.2.1). There are two severe forms of PEM; marasmus and kwashiorkor

(see Bender, 2002).

A.2.2 Micronutrient Deficiencies

Drawing on Bender (2002), Black *et al*. (2013), Gragnolati *et al*. (2006), Müller and Krawinkel (2005), in Table A.1, I summarise the causes and consequences of common micronutrient deficiencies. Table A.1 indicates the significance of micronutrient deficiencies for growth and development.

Table A.1: Summary of Micronutrient deficiencies

Deficiency	**Causes**	**Consequences**
Iron	Low consumption, poor absorption or blood loss	Anaemia (fatigue, dizziness and palpitations), low-birth weight or premature delivery and maternal mortality, impaired physical and cognitive development in children
Iodine	Inadequate intake	Low birth weights, goitre and impaired child development
Vitamin A	Inadequate intake (vitamin A or carotene), poor absorption, increased metabolic demand	Impaired vision, blindness, impaired immune system and thus an increased susceptibility to infection
Zinc	Inadequate intake (often due to consumption of unleavened wholemeal bread), loss due to sweat	Impaired growth and development (delayed puberty), lowered appetite and decreased immunity

A.2.3 The Causes of Malnutrition

The first 1000 days of a child's life are extremely important for nutrition. Poor intrauterine growth rate leads to children having a low birth weight (LBW) (<2500g) (Black *et al*., 2013; Gillespie and Haddad, 2003; Kramer, 1987). After birth, nutrition continues to be important although vulnerability varies. As Martorell (1999: 289) summarised:

> Childhood malnutrition flourishes during periods of vulnerability. One such period is *in utero*… [LBW] newborns are at high risk for serious morbidity and mortality during infancy…There follows a brief period of relative well-being after birth, even in settings of marked poverty, but only if babies are breastfed. At some point in early infancy, by three to six months generally, growth rates begin to falter dramatically, particularly before one year of age. By the time children are two or three years of age, many are underweight and stunted'.

Young children are thus particularly vulnerable to malnutrition. Martorell (1999: 289-290) outlined why:

> One reason is that growth rates in the first few years are higher than at other times after birth, and thus adverse factors have a greater potential for causing growth retardation early in life than at later years. Young children have high nutritional requirements per kilogram of body weight, in part because of their needs for growth. Another reason for the vulnerability of young children is that their immunological systems develop and mature with time; young children are more susceptible to frequent and severe infections than older children with mature immune systems. Yet another reason for the vulnerability of young children is that they are less able to make their needs known and are more vulnerable to the effects of poor parenting.

Thus, child malnutrition is determined by a combination of factors. Poor maternal health including stature and nutrition increases the chance of children having a LBW (Black *et al*., 2013; Gillespie and Haddad, 2003; Kramer, 1987; Ramakrishnan *et al*., 1999; Victora *et al*., 2008). Correct feeding practices, 'exclusive breastfeeding for the first six months of life and continued breastfeeding through the second year of life' (Black *et al*., 2008: 250), also determine child growth and health (Arifeen *et al*., 2001; Ruel *et al*, 1999). Nutritional status is also determined by the environment in which children live. Poor sanitation increases the chance of ingesting pathogens that cause infections and can lead to diarrhoea which then limits nutrient absorption and causes dehydration and appetite loss (Gillespie and Haddad, 2003). Open defecation can result in poor health due to diarrhoea and chronic enteropathy[1], which decreases nutrient absorption and growth (Spears, 2016). Improvements in hygiene, water and sanitation have therefore been found to significantly reduce the rates of morbidity and the severity of other diseases (Esrey *et al*.,1991).

It is possible for catch-up growth to occur in later childhood and adolescence (Golden, 1993; Himaz, 2009; Hirvonen, 2014; Outes and Porter, 2013; Tanner, 1986). Hirvonen (2014) therefore calls for 're-thinking the policy recommendation where nutritional interventions are only targeted to young children' (68). For all, adolescence is a period of rapid growth and therefore adequate nutrition is also very important in adolescence (Black *et al*., 2013).

[1] A disease of the small intestine, caused by ingested faecal material (Humphrey, 2009).

A.2.4 The Consequences of Child Malnutrition

Child malnutrition has profound effects on child development. Unless compensatory growth occurs, then poor nutrition in early childhood leads to stunted growth and thus a reduced stature in adulthood (Gigante *et al*., 2009; Gillespie and Haddad, 2003; Victora *et al*., 2008). Undernutrition detrimentally affects cognitive development (Brown and Pollitt, 1996), by 'causing direct structural damage to the brain and by impairing infant motor development' (Victora *et al*., 2008: 343). Undernutrition therefore detrimentally affects educational performance. For example, Martorell (1996 in Gillespie and Haddad, 2003: 9) found that undernutrition could reduce IQ by up to 15 points. Undernutrition also increases the risk of children dropping out of school (Gillespie and Haddad, 2003). Due to the impacts on health and education, malnutrition has a profoundly negative effect on economic productivity (Gragnaloti *et al*., 2005; Ramachandran, 2014). The World Bank estimate that malnutrition causes productivity losses to individuals equivalent to more than 10% of lifetime earnings and that the gross domestic product (GDP) lost to malnutrition can be as high as 2-3% (2006: 2). In total, Black *et al*. attribute 'more than a third of child deaths and more than 10% of the total global disease burden to maternal and child undernutrition' (2008: 254).

A.2.5 Food Security

As Pritchard *et al*. wrote, a nutritional perspective 'provide[s] little basis for asking how and why these outcomes occur. For this, the metabolic notion of under-nutrition needs expanding into the social scientific concept of *food security'* (2014: 13). 'Food security' became part of official discourse at the 1974 World Food Conference, where the term was defined as the 'availability at all times of adequate world food supplies of basic foodstuffs' (United Nations [UN], 1975). Since then, the concept has 'evolved, developed, multiplied and diversified' (Maxwell, 1996: 155), as has been widely discussed (e.g. Davis *et al*., 2001; Jarosz, 2011; Maxwell, 1996). To summarise, in the 1970s, food insecurity was conceptualised as a supply issue to which the best policy response was to increase food availability through production. However, it became clear that hunger could exist despite adequate production and supply (see Sen, 1981). In the 1980s, hunger began to be understood as the product of production, labour, trade and transfer-based entitlements; people's ability to acquire food through legal means. Thus, after Sen, discussions of food security recognised economic and social access as well as availability, and the scale of focus changed from national production to the household and the individual. Since then, the importance of livelihood security, vulnerability, nutrition security and qualitative factors including quality, cultural acceptability, preference and dignity have been recognised (Davis *et al*., 2001; Maxwell 1996). For this reason, food security is today commonly understood to be 'when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active

and healthy life' (FAO, 1996). As outlined in Table 2.7, food security is considered to have four 'pillars'. Drawing on Sen, food insecurity is when the total food derived from entitlements is insufficient to meet needs (HLPE, 2012). Food insecurity is 'both the inability to secure an adequate diet today (i.e. hunger) and the risk of being unable to do so in the future' (*ibid*: 22).

Even though this definition of food security is now established, scholars, particularly sociologists and geographers, have shown that the term is still often used to refer to food availability and production. Mooney and Hunt (2009) consider this to be a 'flat key approach' to hunger, an approach that obscures the causes of food insecurity (Midgely, 2013). In contrast, a 'sharp key approach' acknowledges access and emphasises low-cost, low-technology production and national self-sufficiency (Mooney and Hunt, 2009). Cloke (2013) therefore considers food security a meme; 'a vehicle for conveying and performing a set of socio-cultural beliefs relating to a neoliberal view of global food production' (622), an idea supported by the analysis of food security discourse and policy by Kirwan and Maye (2013), Lang & Barling (2012), Nally (2015; 2016) and Tomlinson (2011). Collectively, this body of work highlights the need to consider how the term 'food security' is used and why.

The conceptualisation of food security has also changed over time in India. After Independence in 1947, food security initiatives focussed on increasing grain production (Acharya, 2009), achieved in the 1970s largely through the Green Revolution (Ramachandran, 2016). However, persistently high levels of malnutrition led the government to realise that national food production was not the sole determinant of food security (Acharya, 2009). Consequently, government policy began to address poverty and to consider household and individual food security (*ibid*). To ensure food access, the GOI launched the ICDS scheme in 1975 and the PDS in 1992[2] (Ramachandran, 2014). In 1993, the GOI launched a National Nutrition Policy which expanded these two schemes. In 1995, the GOI launched a National Plan of Action on Nutrition and the MDMS. The National Food Security Mission was introduced in 2007 to increase production. Schemes also exist to address the utilisation dimension of food insecurity, including The School Health Programme (part of the 2005 National Rural Health Mission) and *Swachh Bharat Abhiyan* (Clean India Campaign) launched in 2014.

To further ensure access to food, the National Advisory Council (NAC)[3] of the United Progressive Alliance (UPA) government drafted a National Food Security Bill in 2011 (Kotwal *et al.,* 2011). An amended version of the Bill was passed on 2 September 2013, becoming the National Food Security Act. The extent to which the NFSA addresses food security generated much discussion.

[2] These schemes and the other policies referred to in this section are described in Appendix B.4
[3] The NAC was established by the Congress-led UPA coalition government in 2004 to implement the government's Common Minimum Programme, which aimed to address the needs of India's poor.

Suryanarayana (2013) criticised the Act for not being based on an explicit concept of food security. The Right to Food Campaign (2013) argued that the Act over-emphasised grains and failed to consider nutrition and dietary diversity. Saxena (2012; 2016) argued that the Act gives inadequate attention to the non-food determinants of nutrition, particularly sanitation. Indeed, by focussing on access only, the NFSA reflects only one dimension of food security. More generally in discussions of food security in India particularly in the media, one finds a tendency for 'food security' to be used to refer to production and distribution, particularly through the PDS (e.g. *The Economic Times*, 2016; *The Hindu*, 2016). Even, Mander and Parulkar (2016), who acknowledge the plethora of definitions of food security, only discuss agricultural issues under the heading of food security. Thus, the use of the term 'food security' in India is often narrower than the FAO's conceptualisation of the term.

A.2.6 Food Sovereignty

Connected to the right to food is the concept of food sovereignty. 'Food sovereignty' was officially introduced at the 1996 World Food Summit by the international peasant's movement *La Vía Campesina*. Although the definition of food sovereignty has changed over time (Agarwal, 2014; Jarosz, 2014), food sovereignty is now commonly defined as 'the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems' (Declaration of Nyéléni, 2007). Yet, extensive debate concerns what food sovereignty and means in practice (e.g. Agarwal 2014; Bernstein, 2014; Burnett and Murphy, 2014; Claeys, 2012; Edelman, 2014; Patel, 2009; Rosset, 2013; Trauger, 2013). Moreover, little has been said about food sovereignty in specific places (Desmarais and Wittman, 2014) or might mean for people who do not grow their own food such as urban residents (Dickinson, 2013; Patel *et al*. 2013 are notable exceptions). Dickinson (2013) found that food stamps in the US gave beneficiaries little control over what they could eat and Patel *et al*. (2013) argued that recipients of India's food schemes are treated as passive with no control over the food that they receive. Beuchelt and Virchow (2012) and Edelman *et al*. (2014) consider the right to food to be more useful than food sovereignty as it applies to all and is more legitimate as it has already been recognised internationally and nationally and is more feasible. Jarosz (2014), however, advocates seeing the two concepts as relational, connecting issues of food access, with nutrition, justice, ethics and responsibility. Although the focus of this thesis is the right to food not food sovereignty, the latter concept is still useful for considering control in India's food schemes.

A.3 Food Insecurity and Malnutrition in India, Rajasthan and the Study Districts

A.3.1 Introduction

In this section, I provide further insight into food insecurity and child malnutrition in India. I expand on the data presented in Chapter 3 to show the spatial and social patterns in child malnutrition in India, Rajasthan and the study districts and the determinants. In doing so, I aim to provide a more detailed insight into the context in which the MDMS exists and functions.

A.3.2 Food Insecurity

As detailed in Chapter 3, there have been three state-level assessments of food security in India: Athreya *et al*. (2008), Athreya *et al*. (2010) and Menon *et al*. (2008). The first uses data from the Census (2001) and the third National Family Health Survey (NFHS-3), the second and the third use data from NFHS-3 and the National Sample Survey (NSS) (2004-2005). The indicators used in each are detailed in Table A.2.

Table A.2: Indicators used in the indices of food security in India

Study	Focus	Indicators
Athreya *et al*. (2008)	Food (in)security in rural India	- The percentage of population consuming less than 1,890 Kcal/day - The percentage of households without access to safe drinking water - The percentage of households without access to toilets within the premises - The percentage of ever-married women who are anaemic - The percentage of women (15– 49 years) with chronic energy deficiency - The percentage of children (6 –35 months) who are anaemic - The percentage of children (6–35 months) who are stunted.
Athreya *et al*. (2010)	Food (in)security in urban India	- The percentage of urban population consuming less than 1890 Kcal/ day - The number (per 1000) of urban male workers not in regular employment - The number, (per 1000) of urban female workers not in regular employment, - The percentage of urban households without access to toilets - The percentage of ever-married urban women (15-49 years) with any anaemia. - The index supplements these with additional variables to create different variants. Variant one, which is the preferred variant and thus the results are focused on here, also includes the percentage of urban children (6-35 months) with any anaemia and the percentage of urban children (6-35 months) who are stunted.
Menon *et al*. (2009)	State hunger index	- The proportion of the population consuming an inadequate quantity of calories - The proportion of children under five who are underweight - The mortality rate of children under five

The results from Athreya *et al*. (2010) are presented in Chapter 3. To further understand the pattern of food insecurity in India, the results from Athreya *et al*. (2008) are shown in Figure A.1. Athreya *et al*. (2008) found that seven states (Gujarat, Madhya Pradesh, Maharashtra, Karnataka, Andhra Pradesh, Orissa and Bihar) had a high level of food insecurity and two states (Chhattisgarh and Jharkhand) had a very high level. Rajasthan had a moderate level.

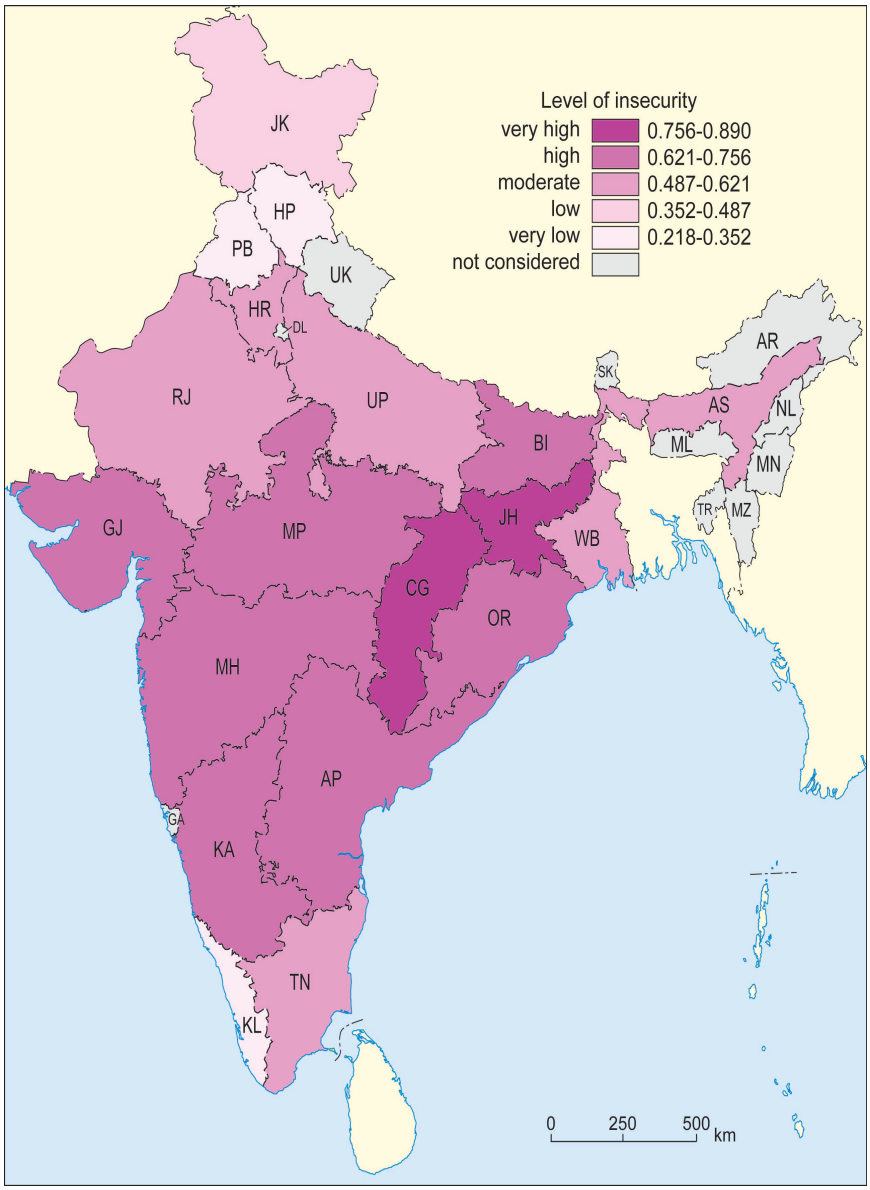


Figure A.1: Map of rural food insecurity in India from Athreya *et al*. (2008: 91)

Menon *et al*. (2008) created a state hunger index. Of the 17 states for which data was analysed, four states were considered to have a 'serious' level of hunger, 12 to have an 'alarming' level and one (Madhya Pradesh) to have an 'extremely alarming' level of hunger (Figure A.2). Rajasthan fell into the alarming category.

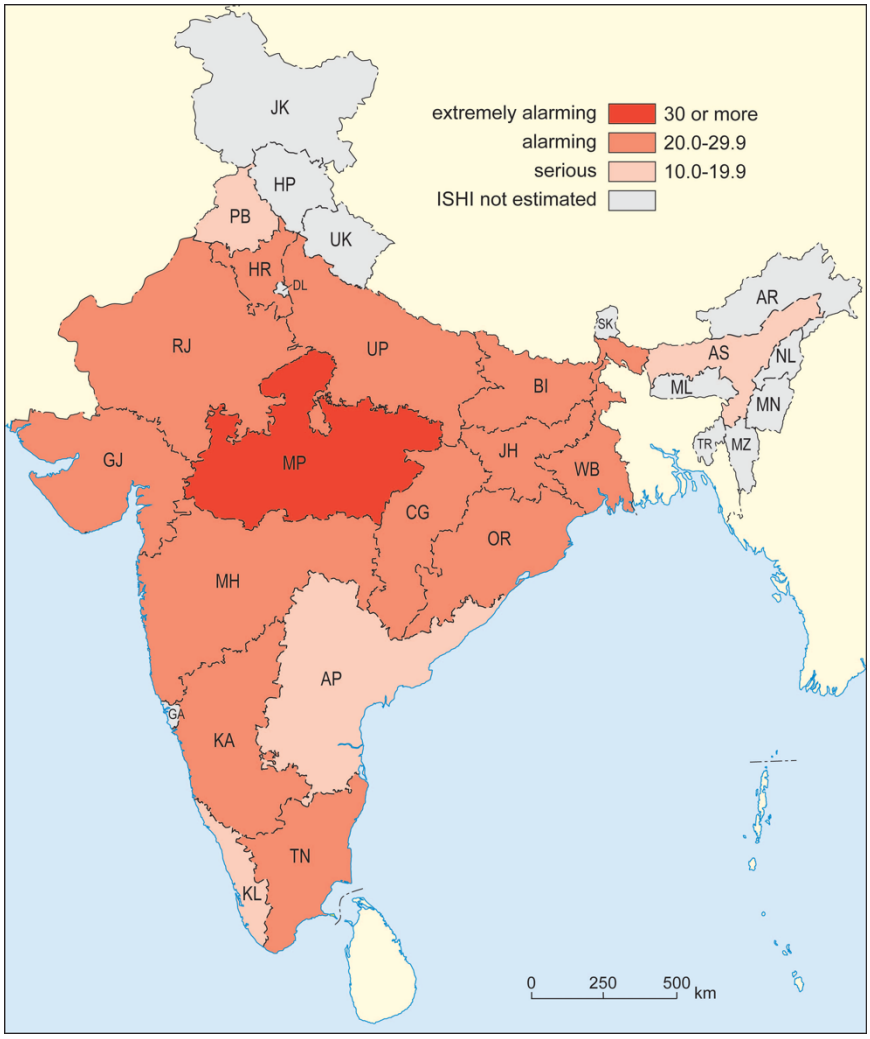


Figure A.2: State hunger index by Menon *et al*. (2008)

From these three assessments, it is clear that Rajasthan has high levels of food insecurity, although not the highest levels.

A.3.3 Stunting, Wasting and Underweight

Data Sources

In Chapter 3, I provided a brief overview of the rates of child malnutrition in India and indicated the different findings of the main nutrition surveys. Here, I elaborate on the problems with the Indian malnutrition data. Examining the extent of malnutrition in India is complicated by a lack of comprehensive and comparative data (Dandona *et al*., 2016; John and Menon, 2015; Misra, 2015). The most comprehensive surveys are the NFHSs. The third was conducted in 2005-2006 and the fourth in 2014-2015. The release of the results for the fourth has, however, been slow and staggered. The Rapid Survey on Children (RSOC) was conducted by the GOI and UNICEF in 2013-2014 and focuses specifically on children. The release of the results was delayed until 2016. In the media, many attributed the delay to political reasons (for example: Angre, 2015; Rowlatt, 2015*; The Economist*, 2015b). Two Indian Human Development Surveys were also conducted, in 2004-2005 and 2011-2012, which covered a range of topics. At the sub-national level, there have been three Annual Health Surveys (AHS) which focus on nine states. These were supplemented by a Clinical, Anthropometric and Bio-chemical (CAB) survey in 2014. Four District-Level Health Surveys (DLHS), have also been conducted, most recently in 2012-2013. Finally, a one-off HUNGaMA survey was conducted in 2011 by the Naandi Foundation. As shown in Table A.3, the surveys have different reference groups, limiting the extent to which the results from the surveys can be compared.

Here, I use data from the RSOC, NFHS-3 and NFHS-4 and the 2014 CAB. The NFHS was used to permit comparison over time. Yet, due to the slow release of the NFHS-4 data and the specific focus of the RSOC on children, the RSOC was also used. The AHS was used to provide data on BMI and anaemia, as it collected data at the district level and provided information on children up to 18 years of age.

Table A.3: Review of India's Nutrition Surveys (*Details from John and Menon 2015, except for the CAB)

Survey		Year	Geographic Coverage	Lowest level at which represent -tative*	Sample Size (HHs)	Data on stunting, wasting and underweight*	Reference group for children*	Data on anaemia in women*	Target Group women*
NFHS	**1**	1992-1993	All of India	State	88,562	Yes	< 4 years	No	Ever married 13-49 years
	2	1998-1999			91,196	Yes	< 3 years	Yes	Ever married 15-49 years
	3	2005-2006			109,041	Yes	< 5 years	Yes	All 15-49 years
	4	2015-2016		District	568,200	Yes	< 5 years	Yes	All 15-49 years
DLHS	**1**	1998-1999	All of India	District	529,817	No	No data	No	Married 15-44 years
	2	2002-2004			620,107	Underweight	< 6 years	Yes	Married 15-44 years
	3	2007-2008			720,320	No	No data	No	Ever married 15-49, never married 15-24
	4	2012-2013			350,000	Yes	< 5 years	Yes	Ever married 15-47 years
AHS	**1**	2011	9 states, 284 districts	District	4.1 million	No	No data	No	Ever married 15-49 years
	2	2012			4.2 million	No	No data	No	Ever married 15-49 years
	3	2013			4.3 million	No	No data	No	Ever married 15-49 years
AHS (CAB)		2014		-	1.65 million	Yes	< 5 years, 5-18 years	Yes	18-59 years
Indian Human Develop-ment Survey	**1**	2004-2005	All of India	National	41,554	Yes	< 5 years, 8-12 years	No	Ever married 15-49 years
	2	2011-2012			42,152	Yes	< 5 years, 8-12 years	No	Ever married 15-49 years
HUNGaMA		2011	112 districts, 9 states	District	109,093 children,	Yes	< 5 years	No	Mothers of children < 5 years
RSOC		2012-2013	All states	State	105,483	Yes	< 5 years	no	NA

Spatial Patterns

The prevalence of each indicator of PEM varies by state. The prevalence of underweight children was shown in Chapter 3. Figure A.3 presents the degree of stunting, from the RSOC[1]. Prevalence ranged from 19.4% in Kerala to 51% in Uttar Pradesh. In Rajasthan, 36.4% of under-fives were stunted.

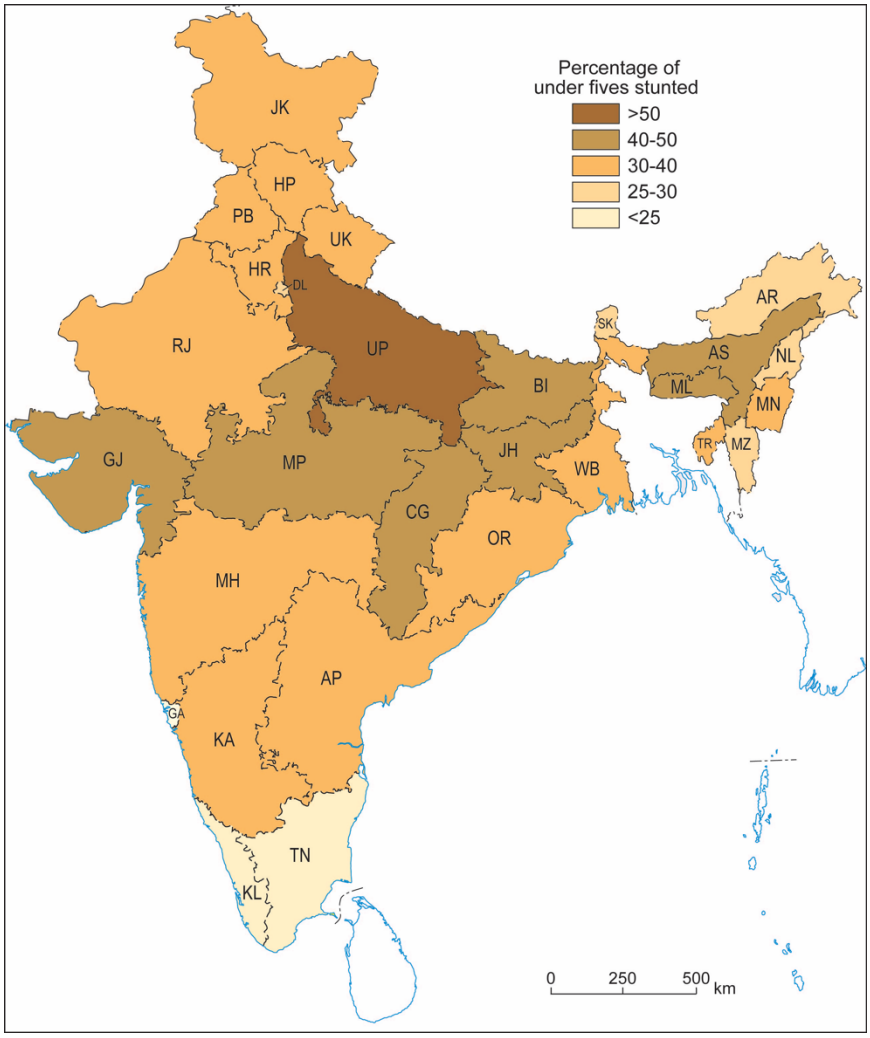


Figure A.3: Percentage of under-fives in India that are stunted
(data from GOI and UNICEF, 2016)

Figure A.4 shows the prevalence of wasting, which does not follow the same pattern. Prevalence of wasting ranged from 5.1% in Sikkim to 19.1% in Andhra Pradesh. In Rajasthan, 14.1% of under-fives were experiencing wasting.

[1] Due to the slow release of NFHS-4 data, at the time of the creation of Figures A.3 and A.4 the RSOC data covered the largest number of states and was therefore used.

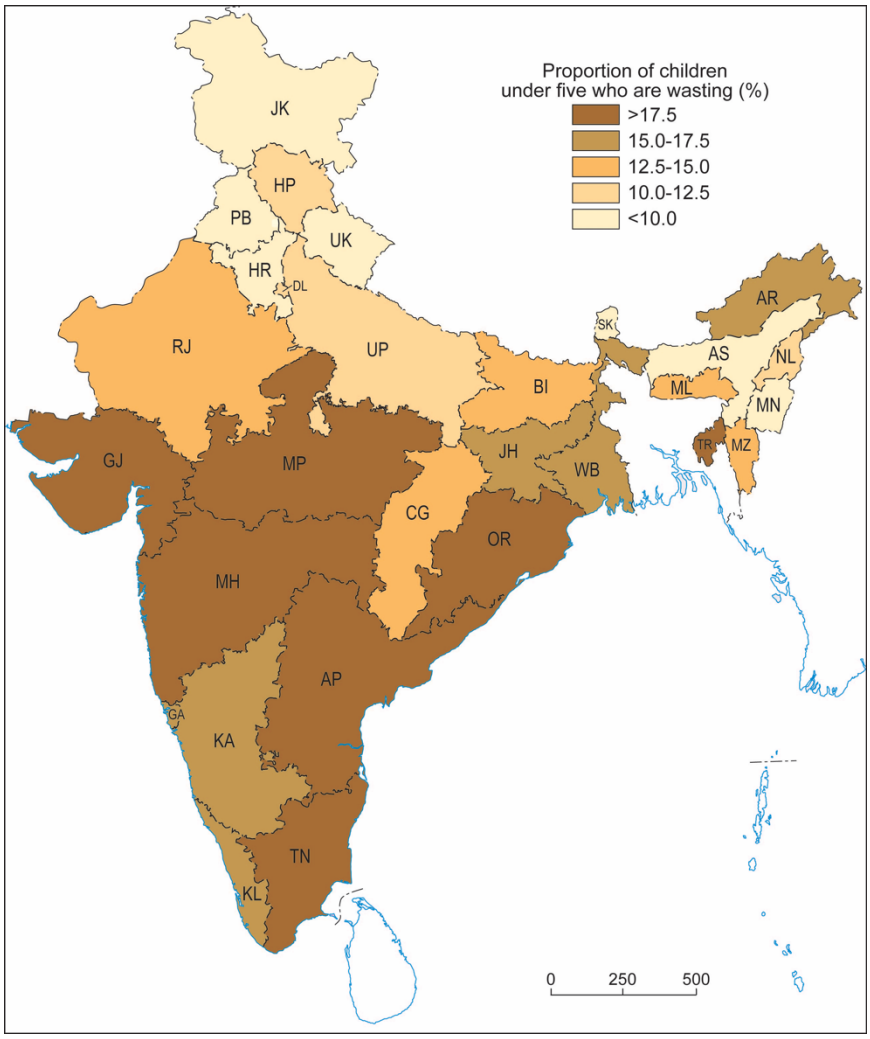


Figure A.4: Percentage of under-fives in India who are wasting
(data from GOI and UNICEF, 2016)

Overall, PEM is prevalent in Rajasthan, although it is not the worst state for child malnutrition. The prevalence of the three measures of PEM, however, vary across Rajasthan. Figures A.5-7 show the prevalence of each indicator by district. As shown, the prevalence of stunting and underweight children is particularly high in Udaipur district. Using the NFHS-4 data, of 33 districts, Rajsamand has the sixteenth highest level of stunting, the ninth highest level of wasting and the seventeenth highest level of underweight children. Udaipur district has the fourth highest level of stunting, the eighth highest level for wasting and the third highest level of underweight children. Thus, levels of PEM are particularly high in Udaipur district.

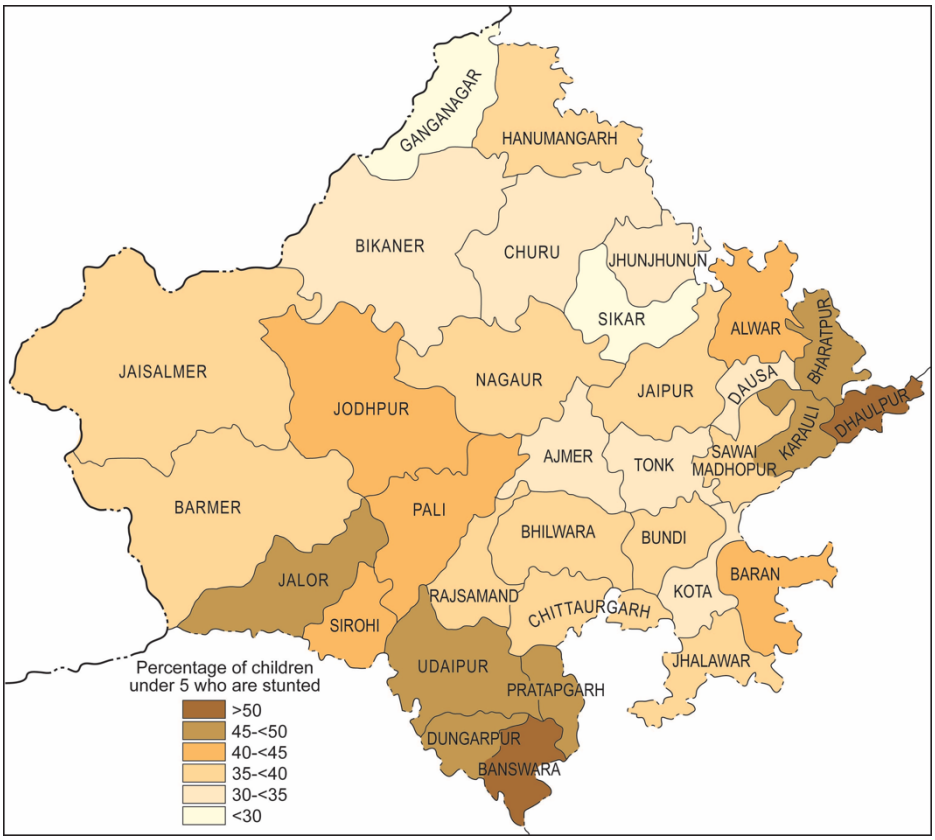


Figure A.5: Percentage of children under five who are stunted in Rajasthan (data from IIPS, 2016)

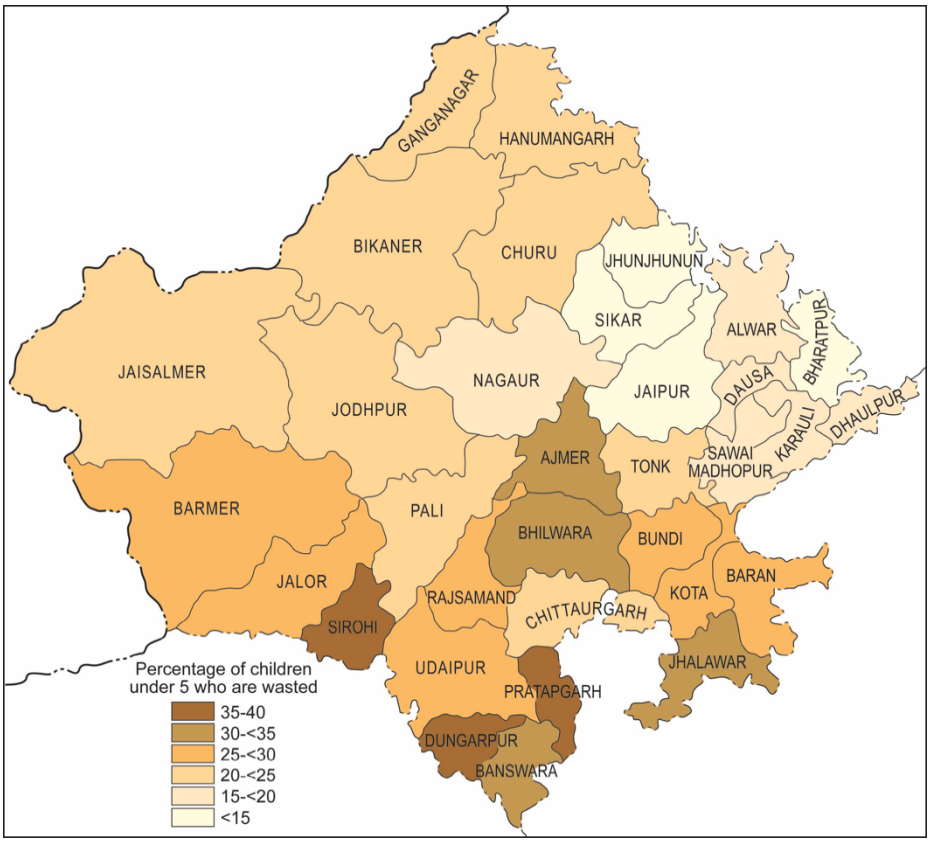


Figure A.6: Percentage of children under five who are wasted in Rajasthan (data from: IIPS, 2016).

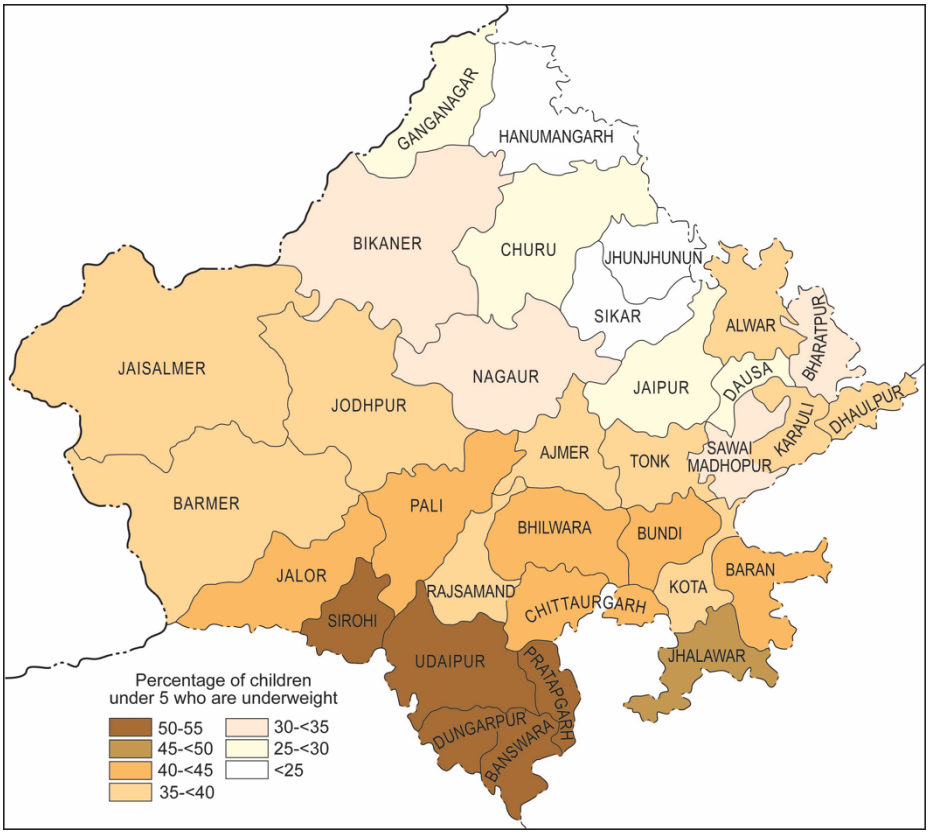


Figure A.7: Percentage of children under five who are underweight (data from: IIPS, 2016)

Figures A.3-A.7 show that child malnutrition is prevalent in Rajasthan and particularly in the study districts. Thus, by the time children in the study area attend school, a large proportion are suffering from PEM. In the following two sub-sections, I detail the rates of malnutrition among children of school-going age.

A.3.4 BMI

Malnutrition in older children is assessed using BMI. The RSOC reports BMI in girls aged 10-18 only. Nationally, 77.2% of girls aged 10-14 and 44.7% of girls aged 15-18 have a below normal BMI (<18.5). Figure A.8 shows the prevalence across states. Comparing Figure A.8 with Figure A.3, it is clear that some states such as Bihar and Jharkhand have both a high prevalence of stunted children and girls with a below normal BMI. However, Rajasthan and particularly Goa have especially high levels of girls with below normal BMIs. In Rajasthan, 74.4% of adolescent girls (10-18 years) had a BMI of less than 18.5, compared to the national average of 62.5% (GOI, 2016c). The percentage was even higher in rural areas at 77.3%.

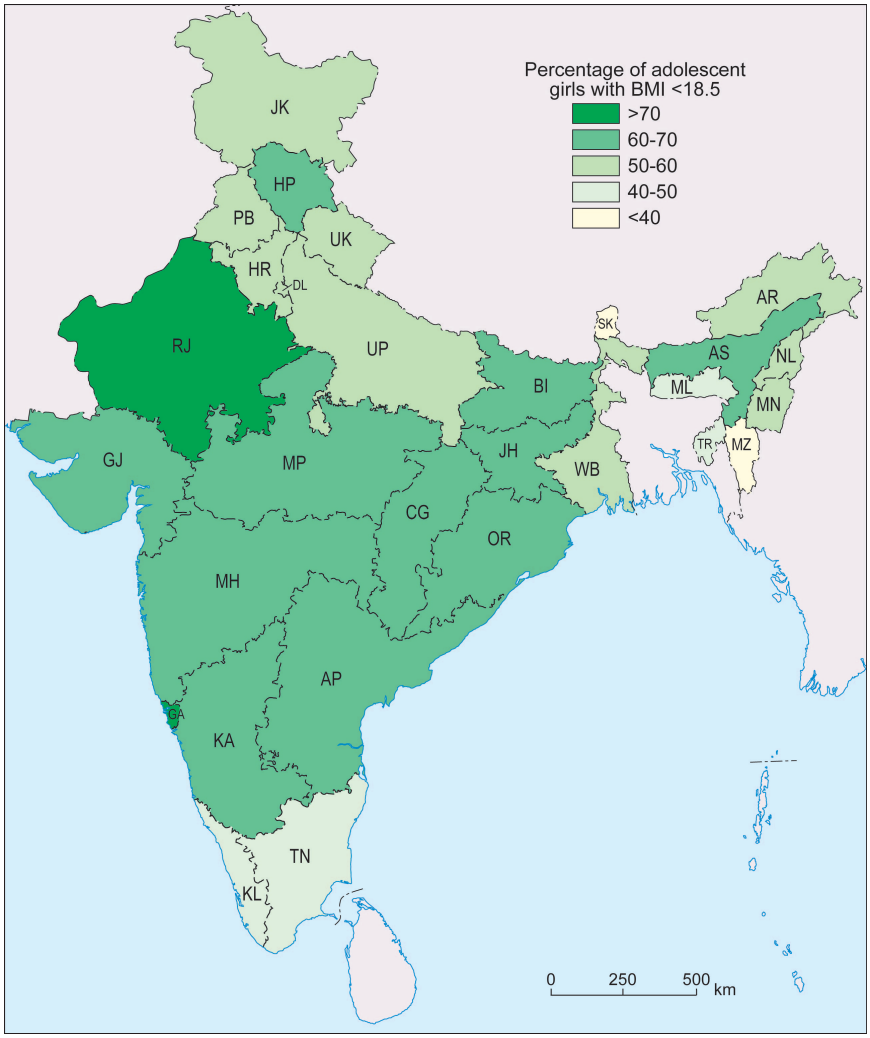


Figure A.8: Percentage of girls (10-18 years) with BMI < 18.5
(data from GOI and UNICEF, 2016)

The AHS provides insight into the nutritional status of children aged 5-18, albeit in just nine states. Figure A.9 shows the percentage of children between 5-18 years with a below normal BMI for age. As shown, Rajasthan has the second highest level; 32.5% of children in this age group are undernourished.

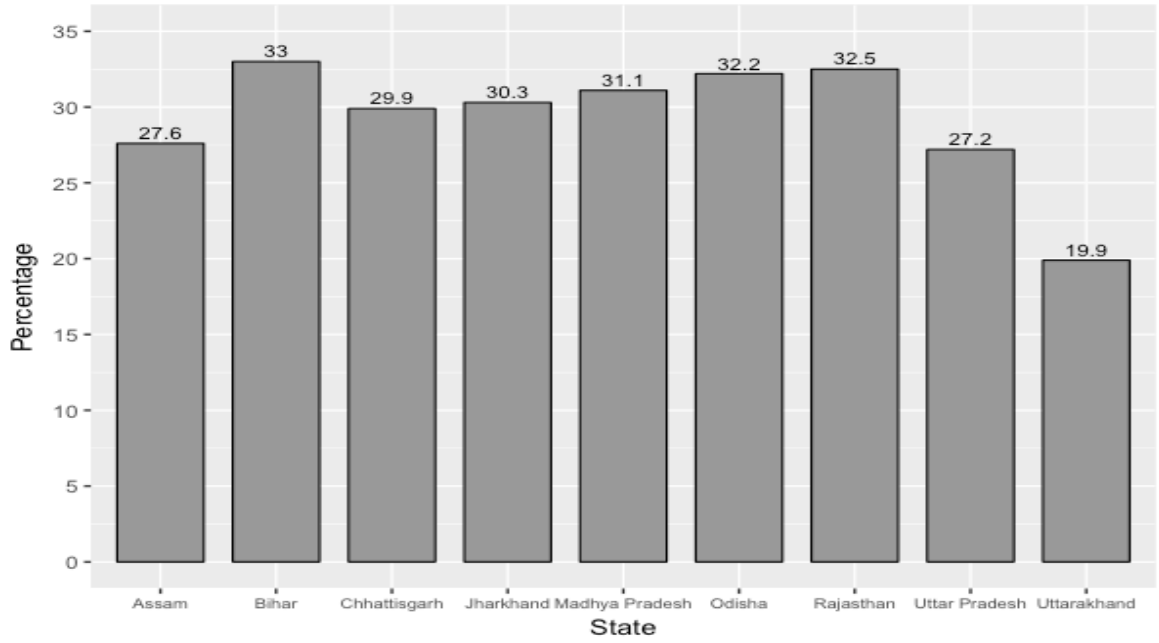


Figure A.9: Percentage of children (5-18 years) who are undernourished (<2sd) (Data source: GOI, 2014a).

The AHS results indicate that in the study districts undernutrition is prevalent among 5-18 year olds. Udaipur has the eighth highest level of undernourishment (39% of 5-18 year olds) and the fifth highest level of severe undernourishment (19.5%) (<3 standard deviations below normal). Rajsamand has the twelfth highest level of undernourishment (36.6%) and the seventh highest level of severe undernourishment (18.0%). These results indicate that severe levels of undernourishment are particularly high in the study districts. Table A.4 shows the percentage of adults aged 15-49 with a below normal BMI. As shown, the study districts have higher levels that the state and national averages.

Table A.4: Percentage below normal BMI (Data from: IIPS, 2016)

Location		**Percentage with a Below normal BMI (15-49 years)**	
		Women	**Men**
India	Total	22.9	20.2
	Rural	26.7	23.0
Rajasthan	Total	27.0	22.7
	Rural	29.9	25.1
Rajsamand	Total	28.6	26.6
	Rural	31.2	30.5
Udaipur	Total	37.7	38.7
	Rural	43.1	42.1

A.3.5 Anaemia

It is also necessary to consider the prevalence of micronutrient deficiencies, of which anaemia (a lack of iron) is the most commonly measured deficiency. The AHS found that anaemia was prevalent among children. The proportion of 5-9 year olds with anaemia ranged from 78.5% of the age group in Chhattisgarh to 95.1% in Uttarakhand. The prevalence among 10-17 year olds ranged from 74.5% in Odisha to 91.1% in Uttarakhand. Data on anaemia from the NFHS-4 and AHS are shown in Table A.5. Once again, the study districts have higher levels than India and Rajasthan. Notably, anaemia is particularly prevalent among children in Rajsamand district.

Table A.5: Levels of Anaemia

Location		Percentage anaemic					
		6-59 months (NFHS-4)	5-9 years (AHS)	10-17 years AHS	All women 15-49 (NFHS-4)	Anaemia 18-59 (AHS)	
						Men	Women
India	Total	58.4	-	-	53.0	-	-
	Rural	59.4	-	-	54.2	-	-
Rajasthan	Total	60.3	85.7	81.4	46.8	83.0	82.6
	Rural	61.6	85.8	82.2	49.0	83.8	83.4
Rajsamand	Total	75.9	88.8	84.6	62.0	87.3	86.6
	Rural	76.5	87.3	84.4	63.3	88.2	86.4
Udaipur	Total	79.1	81.8	79.8	69.7	84.5	84.7
	Rural	80.5	82.0	82.2	74.3	86.2	84.5

Thus, approximately 80-89% of children of school-going age in Rajasthan and the study districts suffer from anaemia.

A.3.6 Social Patterns

The prevalence of undernutrition therefore varies between and within states and is typically higher in rural areas (Ramachandran, 2014). Rates of undernutrition vary socially as well as spatially. Whilst the RSOC report concludes that there are no significant differences by gender in the prevalence of stunting, wasting and underweight children (GOI and UNICEF, 2016), typically a higher proportion of girls suffer from anaemia (GOI, 2014a). Typically, although not always, a higher proportion of adult women than men have a below normal BMI (IIPS, 2016). The trends in rates of malnutrition and other social groupings are clearer. At the national level, the results from the RSOC (Table A.6) showed strong trends in malnutrition by caste, religion, wealth and maternal education.

Table A.6: Malnutrition in under-fives in India (GOI, 2016c)

Characteristic		Percentage of under-fives experiencing indicator		
		Stunting	**Underweight**	**Wasting**
Caste	SC	42.4	32.7	15.5
	ST	42.3	36.7	18.7
	OBC	38.9	29.3	14.8
	Other	33.9	23.6	13.6
Religion	Hindu	38.6	29.7	15.5
	Muslim	42.1	30.5	13.4
	Christian	32.2	21.9	15.4
	Sikh	28.7	17.4	10.7
	Jain	20	15.9	11.9
	Buddhist	26.7	26.2	22.0
Wealth Index	Lowest 20%	50.7	42.1	17.0
	Top 20%	26.7	18.6	13.0
Mother's Education	No Education	48.7	37.9	15.3
	< Primary	44.1	34.3	15.2
	Primary	39.8	30.9	15.2
	Middle	35.4	25.8	15.2
	Secondary	31.3	22.4	14.5
	Higher Secondary	26.3	18.7	14.5

Although data on religion, wealth and maternal education are not available at the state level, caste-based trends in the rates of PEM are evident in Rajasthan. As shown in Table A.7, the prevalence of malnutrition is far higher among children belonging to SCs and STs than other castes.

Table A.7: PEM by caste in Rajasthan (data from GOI and UNICEF, 2016)

Caste	Percentage of under-fives who are		
	Stunted	**Wasted**	**Underweight**
SC	44.3	15.3	35.0
ST	45.9	22.8	44.5
OBC	32.2	12.0	27.3
Other	31.0	11.1	27.7

There are also other groups that are particularly vulnerable to undernutrition. These include: 'those belonging to the unorganized sector, such as landless workers and artisans, single-woman headed households, the destitute, children in especially difficult circumstances like street and working children, disabled and old people without caregivers, migrant workers' (Ramachandran, 2014: 8).

A.3.7 Determinants

The variation in the levels of malnutrition can broadly be explained by the variation in the underlying determinants of malnutrition. Using the conceptual framework of the determinants of child malnutrition shown in Chapter 2 (Figure 2.2), these causes can be grouped as household food intake, care for mothers and children and health care.[2] The following examines these determinants in the Indian context.

Food Intake

Despite rising incomes and expenditure in India since the 1980s, the NSSs show that average calorie consumption has declined. In 1983, the average daily intake was 2221 kcal in rural areas and 2089 kcal in urban areas (GOI, 2014c). Average intake reached the lowest level in 2009-2010 at 2020 kcal in rural areas and 1946 kcal in urban areas. By 2011-2012 intake had increased to 2099 kcal and 2058 kcal, but was still lower than the 1983 levels (*ibid*). The National Nutrition Monitoring Bureau (NNMB) of the National Institute of Nutrition (NIN) in Hyderabad has conducted nutrition surveys in 10 states[3] since 1975. The NNMB also find an average decline in consumption by 500kcal/CU/day, ranging from a decline of 885 kcal in Karnataka to 218 kcal in Gujarat (NIN, 2012: 42).

Heated debate surrounds the reason for this decline, a full review of which is provided by Pritchard *et al*. (2014: 34-39). Following this review, it is likely that the decrease in consumption is due to decreased calorie needs resulting from decreased physical activity (Deaton and Drèze, 2009; Desai *et al*., 2016a; Ramachandran, 2016), voluntary decisions to spend money on non-food items (Banerjee and Duflo, 2011) and increased pressure on household budgets due to other costs such as education (Basu and Basole, 2013). The NNMB surveys also found decline in the consumption of main food groups between 1975 and 2012; in rural areas cereal intake decreased by 137g, roots and tubers by 6g, milk and milk products by 21ml, sugar and jaggery (cane sugar) by 9g and other vegetables by 6g (Ramachandran, 2016).

[2]These explanations can, of course, be grouped in other ways, as done by Desai *et al*., (2016a); Menon *et al*., (2009) and Walton (2009).

[3] The NNMB surveys are conducted Andhra Pradesh, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Tamil Nadu, Uttar Pradesh and West Bengal. Rajasthan is not included.

At the aggregate level, consumption in Rajasthan looks favourable compared to the national average. Average calorie intake in 2011-2012 in Rajasthan was 2408 kcal in rural areas and 2320 kcal in urban areas, higher than the national averages of 2233 kcal and 2206 kcal c: 38-40). Per capita protein intake was 68.4g in rural Rajasthan and 62.7g in urban Rajasthan compared to 56.5g and 55.7g nationally. Yet, between 1993-1994 and 2011-2012, the amount of protein consumed in Rajasthan decreased by 11g; the greatest reduction in any state. Compared to the national average, roots and tubers, pulses, vegetables, meat, egg and fish make a smaller contribution to food intake in Rajasthan than elsewhere (GOI, 2014c).

Moreover, food intake varies considerably between groups. The NSS compares expenditure on food and cereals and the daily intake of calories, protein and fat with monthly per capita expenditure (MCPE) which is taken from the NSS consumer expenditure survey. Generally, in rural areas expenditure on food and cereals decreases as total monthly expenditure increases. In Rajasthan, for the first fractile[4], 51% of expenditure is on food, peaking at 56.4% for the third fractile and declining to 31.7% for the twelfth. The same pattern is also found in urban areas; declining from 57.2% to 24.1%. Expenditure on cereals declined from 15.5% to 2.2%. Although the expenditure on food declines as overall monthly expenditure increases, food intake increases. Figures A.10 and A.11 show that the consumption of calories and protein is nearly twice as high in the twelfth fractile than in the first. Fat intake also increased, from 29.6g in rural areas and 40.7g in urban areas in the first fractile to 121.5g and 132.5g in the twelfth fractile. The differences between the first and twelfth fractile are considerable; in rural areas, the lowest fractile consume almost half the number of calories, slightly over half the amount of protein and one third of the amount of fat as the top fractile.

[4] The GOI (2014b: 12) divides expenditure groups into fractiles. The first fractile is between 0-5% of the population, meaning 0-5% of the population with the lowest ranked MCPE. The second between 5-10%, the third between 10-20% increase in tens until the eleventh and twelfth fractiles which refer to the 90-95% and 95-100% of the population. Thus, the first fractile has the lowest MCPE and the twelfth the highest.

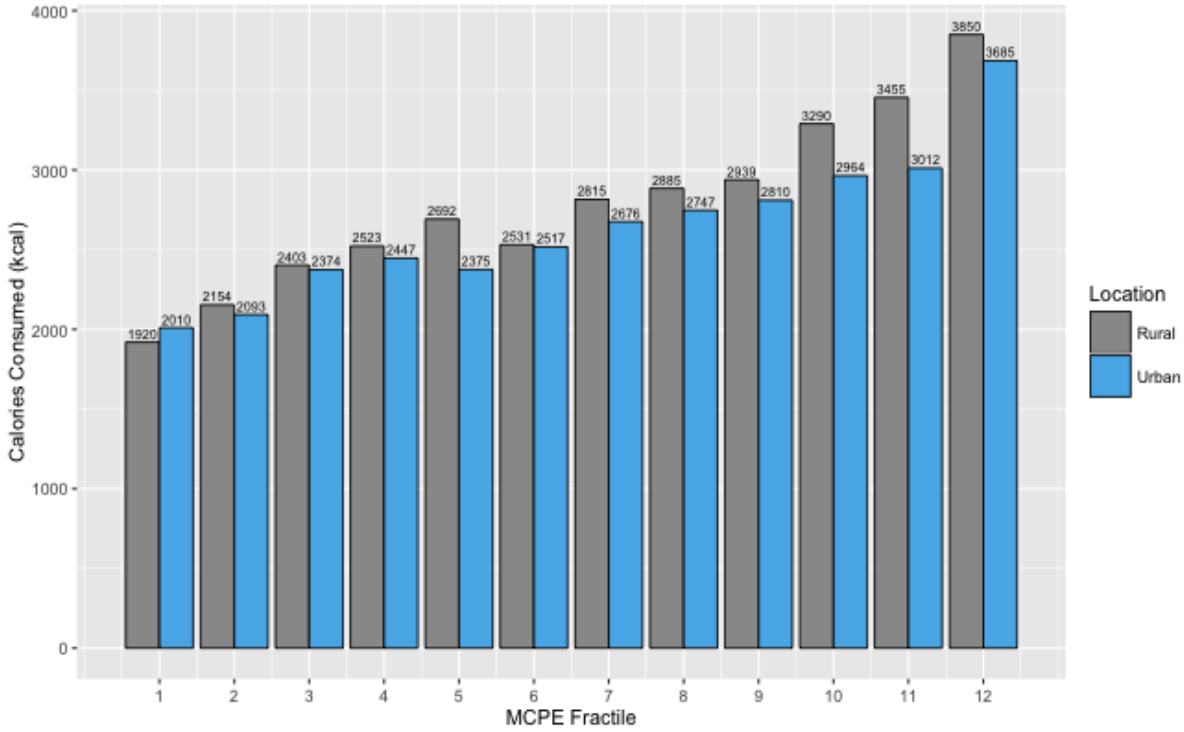


Figure A.10: Calorie consumption by MCPE Fractile in Rajasthan (data from: GOI, 2014c: A-95).

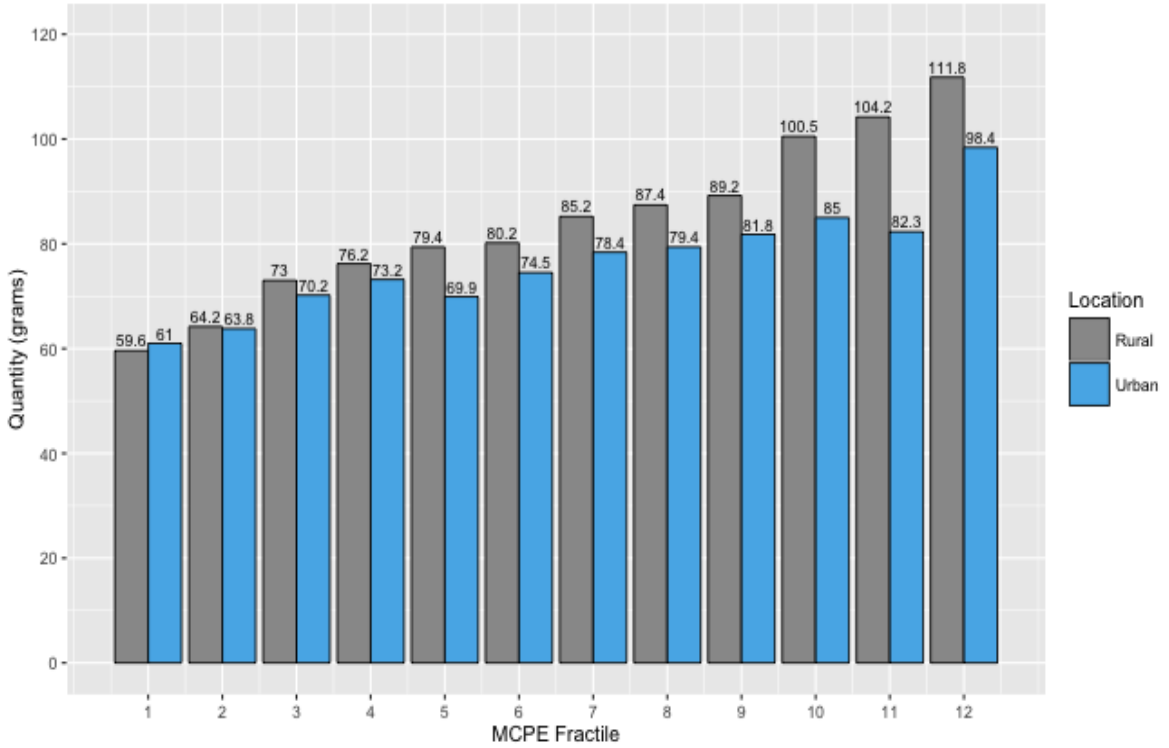


Figure A.11: Protein consumption by MCPE Fractile in Rajasthan (data from: GOI, 2014c: A-95).

Overall, Figures A.10 and A.11 show that food intake is particularly inadequate among the poor (those with the lowest MCPE).

Care

Child malnutrition in India has been repeatedly shown to be determined by maternal nutrition (Ramalingaswami *et al*., 1997; Sanghvi *et al*., 2001; Subramanian *et al*., 2009) and maternal care and feeding practices (Brennan *et al*., 2004; Kumar *et al*., 2006; Ramalingaswami *et al*., 1997). Poor child feeding practices have been shown to be related to the mother's nutritional knowledge (Malhotra, 2012) and overall, maternal education has been found to affect child nutrition (Mishra and Retherford, 2000; Mittal *et al*., 2007; Radakrishna and Ravi, 2004). Maternal and child nutrition is also affected by the intra-household distribution of food which may be affected by autonomy, education and gender (Gragnolati *et al*., 2005). The gendered distribution of food in the favour of males is noted to occur (for example: Chaudhury, 1984; Levinson 1974), although it does not always occur (Ghosh, 1986; Griffiths, *et al*., 2002). Child nutrition is also influenced by birth order and birth interval; later children and children born closer together are more likely to be malnourished (Basit *et al*., 2012; Harishankar *et al*., 2004; Mishra and Retherford, 2000).

The prevalence of these determinants of child malnutrition are typically higher in Rajasthan than the national average. Nationally, of the 68.7% of children weighed within 24 hours of birth, 18.6% had a LBW, whereas in Rajasthan, of the 57.8% weighed, 23.2% had a LBW (GOI, 2016). As shown in Table A.8, good child feeding practices are far from being practiced by all, and, with the exception of frequency of feeding, are practiced less in Rajasthan than nationally.

Table A.8: Feeding Practices in India and Rajasthan (GOI, 2016c)

Feeding Practice	India	Rajasthan
Percentage of children under two fed within one hour of birth	44.6	38.6
Percentage exclusively breastfed for the first five months	64.9	49.9
Percentage receiving complementary foods at 6-8 months	50.5	45.9
Percentage aged 6-23 months fed minimum number of times[5]	36.3	45.8
Percentage aged 6-23 months with minimum dietary diversity[6]	19.9	14.5

Health

Malnutrition in India is also determined by the health environment, including access to safe water and sanitation (Ramalingaswami *et al*. 1997; Smith and Haddad, 2015; Spears, 2013). The Census (GOI, 2011) found that 53.1% of people had no latrine and the RSOC found that 45.5% of people practice open defecation. Malnutrition is also linked to health care facilities, including care for pregnant women and new mothers and infants. The RSOC shows the coverage and use of these health

[5] Breastfed at least twice a day for children 6-8 months old and three times for 9-23 months
[6] Four or more food groups

facilities is inadequate and is lower in Rajasthan than nationally (Table A.9). The health environment is also worse in Rajasthan. As was shown in Chapter 3 (Table 3.4) open defecation and poor sanitation facilities are more common in Rajasthan than nationally and more common in the study districts than in the state.

Table A.9: Available and use of health facilities in India and Rajasthan (GOI, 2016c)

Percentage of	**India**	**Rajasthan**
Women receive post-natal care within 24 hours	39.2	9.5
New-borns receive check-up within 24 hours	33.6	9.9
Children aged 12-23 months fully immunised	65.3	60.7
Aganwadi open for at least 25 days in previous month	62.6	56.4
Children aged 0-35 months availed of *anganwadi* services	49.2	33.7
Children aged 36-71 months availed of *anganwadi* services	44.2	22
Pre-school children attending *anganwadi* centre	38.7	15.5
Children 0-59 months receiving deworming in past 12 months	27.6	19
Children 0-59 months receiving iron/folic acid in past 12 months	13.4	4.3
Children 0-59 months receiving vitamin A in past 12 months	45.2	27.3

There are clear social patterns in maternal nutrition, caring practices, access to and use of health services and the health environment. As shown in Table A.10, poor feeding practices, limited access to medical care and inadequate access to sanitation are more likely to be experienced in rural areas, by SCs and STs and by the poorest.

Table A.10: Selected determinants of malnutrition and prevalence by location, caste and wealth (GOI, 2016c)

Determinants	Location		Caste				Wealth Index	
	Rural	Urban	SC	ST	OBC	Other	Lowest	Highest
LBW	18.7	18.4	19.6	21.6	18.0	17.6	22.2	16.5
Complementary feeding 6-8 months	47.1	58.1	45.2	45.5	50.8	55.6	41.2	62.1
Minimum dietary diversity 6-23 months	18.6	23.0	17.9	16.6	19.1	24.1	14.2	26.5
Vitamin A dose 6-59 month past 12 months	43.8	48.3	43.4	46.0	45.5	46.4	37.5	48.8
Iron/folic acid dose 6-59 months past 12 months	12.7	15.2	12.3	15.4	13.7	13.5	8.7	15.1
Deworming medication	26.6	30.0	24.4	28.2	25.5	32.8	23.0	31.2
3-6 years not attending *anganwadi*/ private institution	28.3	24.5	29.4	26.9	28.3	23.6	34.8	20.3
Access to improved drinking water	90.2	92.8	92.7	85.3	90.3	93.1	88.7	91.2
Practicing open defecation	61.6	12.8	58.1	68.9	45.7	28.0	91.1	2.3

Child malnutrition is thus not only caused by inadequate food intake. Ramachandran (2014), using data from the NFHS-3, found that undernutrition in adult males and females is highly correlated (r=0.95[10]) 'indicating common causal factors like insufficient income/access to food' (2014: 92). However, Ramachandran found that the correlation between undernourished women and undernourished children (<5 years), is weaker (r= 0.77) indicating that 'factors other than food intake are the cause of poor nutrition status among children' (*ibid*). Ramachandran also finds positive correlations between underweight children under five and the proportion of the population falling in the lowest income quartile (r = 0.76), females with no education (r=0.67), and toilet facilities at home (r= 0.73 (*ibid:* 94-95).

It is the high levels of these underlying determinants that cause high levels of malnutrition in India and the persistence of the Indian enigma (Ramalingaswami *et al*., 1997). For example, Coffey (2015) reports that '42.2% of Indian women are underweight when they begin pregnancy compared with 16.5% of African women' (3302). Although neither women in Africa or India gain a lot of weight during pregnancy, 'because of pre-pregnancy deficits, Indian women end pregnancy weighing less than African women do at the beginning' (*ibid)*. Higher rates of open defecation in India have also been attributed to causing the differences between stunting in the two regions (Spears, 2013).

A.4 Conclusion

The problem of malnutrition is multi-dimensional and inter-generational. As put by Ramachandran *et al*. (2008: 15):

> When poor and weak mothers give birth to children in the absence of family, community and institutional support, an intergenerational process of poor health, nutrition and education is set in motion in which the majority of Indian children are willy-nilly caught. These very handicaps have a long-term effect.

Addressing hunger and malnutrition therefore requires a multi-dimensional response. In particular, the above shows the importance of the third dimension of food security, utilisation. Addressing the problems of hunger and malnutrition requires more than merely increased access to food; the underlying and basic determinants (Figure 2.2) must also be addressed. Moreover, the above shows the importance of the life-cycle approach taken in the NFSA. Although the first 1000 days are the most important from a nutritional perspective, adequate nutrition throughout the life-cycle is also required.

[10] All correlations reported in this paragraph are significant at 99.9%.

The data and trends explored in this appendix therefore have implications for the research context. First, it has been shown that certain groups are more likely to suffer from malnutrition and poor food intake. These are the same groups that are likely to be enrolled in government school and to be out-of-school. Second, high levels of malnutrition among school-aged children in Rajasthan have been shown. The need for effective nutrition interventions in the study state and districts has therefore been shown. Finally, the above has shown that the efforts to address malnutrition must consider all the determinants of malnutrition. Increased access to food in the MDMS is not enough; the other determinants of malnutrition must also be addressed.

Appendix B

Chapter 2

B.1 A Recent History of India's Policy on Nutrition and Food Security

National Nutrition Policy, 1993

The National Nutrition Policy was launched in 1993. Recognising the prevalence of PEM and micronutrient deficiencies and the multi-dimensional problem of nutrition, the Policy outlined measures to tackle nutrition, including the expansion of ICDS to cover the remaining 2,388 blocks in the country by 2000. The Policy also stated:

> 'with the objective of reducing the incidence of severe and moderate malnutrition by half by the year 2000 A.D. a concerted effort needs to be made to trigger appropriate behavioural changes among the mothers. Improving growth monitoring between the age group 0 to 3 years in particular with closer involvement of the mothers, is a key intervention' (GOI, 1993: 7).

The policy also aimed to reduce LBWs to less than 10% by 2000. To do so, the Policy asserted that supplementary nutrition should be expanded beyond the first trimester, up to and including the major period of lactation. To ensure food security, the policy asserted that food grain production should be increased to at least 230 million tonnes by 2000. The Policy also asserted that a National Nutrition Council would be created, over which the Prime Minister would preside.

National Plan of Action on Nutrition, 1995

The National Plan of Action on Nutrition, launched in 1995, sought to increase 'awareness of energy and micronutrient deficiencies' and to empower 'household and communities to tackle them through existing resources' (GOI, 1995a); 13). The Plan recognised the problems of malnutrition, determined

by maternal status, intrauterine growth rate and the inadequacies in the intake of calories, protein and micronutrient intake.

The Plan outlined the history of nutrition policy in India since Independence, as occurring in four phases: medical/clinical, food production and technology. community development and the multi-sectoral approach, which began with the launch of ICDS.

The Plan outlined the following aims, to be achieved by the year 2000:

- 'Reduction in moderate and severe malnutrition among pre-school children by half
- Reduction in chronic under nutrition and stunted growth in children
- Reduction in incidence of low birth weight to less than 10 percent
- Elimination of blindness due to vitamin 'A' deficiency
- Reduction in iron deficiency anaemia among pregnant women to 25%
- Universal iodization of salt for reduction of iodine deficiency disorders to 10%
- Giving due emphasis to Geriatric Nutrition
- Production of 250 million tonnes of food grains
- Improving household food security through poverty alleviation programmes
- Promoting appropriate diets and healthy lifestyles' (*ibid*; 13)

The Plan also outlined the general and specific objectives and plans of action across different sectors: agriculture, civil supplies and public distribution, education, forestry, maternal and child health, food, food processing industries, health, information and broadcasting, labour, rural development, urban development, welfare and women and child development. For example, the general objective of agriculture was to 'ensure national level food security including adequate buffer stocks and nutritional considerations in Agriculture Policy'. For women and child development, the objective was to 'ensure 'appropriate development of human resources both through direct nutrition interventions for specially vulnerable groups as well as through various development policy instruments' (*ibid*: 15, 40).

National Rural Health Mission, 2005

The GOI launched the National Rural Health Mission (NRHM) on 12 April 2005 to provide accessible, affordable and quality health care to the rural population, especially the vulnerable groups' (GOI, 2013). The NRHM also sought to reduce the maternal mortality rate from 407 to 100 per 100,000 live births, infant mortality from 60 to 30 per 1000 live births and the total fertility rate from 3.0 to 2.1 by 2012 (GOI, 2005 5). The NRHM also sought to ensure:

- 'Universal access to public services for food and nutrition, sanitation and hygiene and universal access to public health care services with emphasis on services addressing women's and children's health and universal immunization

- Prevention and control of communicable and non-communicable diseases, including locally endemic diseases.
- Access to integrated comprehensive primary health care.
- Population stabilization, gender and demographic balance.
- Revitalize local health traditions & mainstream AYUSH [Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy]
- Promotion of healthy life styles' (*ibid*: 15)

The mission focused primarily on 18 states; Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Himachal Pradesh, Jharkhand, Jammu and Kashmir, Manipur, Mizoram, Meghalaya, Madhya Pradesh, Nagaland, Orissa, Rajasthan, Sikkim, Tripura, Uttaranchal and Uttar Pradesh. The Mission involved the introduction of a trained voluntary community health worker (Accredited Social Health Activist or ASHA) in every village in 18 priority states (*ibid)*.

In 2013, a National Urban Health Mission (NUHM) was launched, which along with the NRHM, falls under an overarching National Health Mission (GOI, 2013a).

National Food Security Mission, 2007

The National Food Security Mission (NFSM) was launched on 29 May 2007. The Mission aimed to increase the production of rice by 10 million tons, wheat by 8 million tons and pulses by 2 million tons by the end of the Eleventh Plan (2011-12)' (GOI, 2009: 1). Overall, the Mission had four objectives:

1. 'Increasing production of rice, wheat and pulses through area expansion and productivity enhancement in a sustainable manner in the identified districts of the country;
2. Restoring soil fertility and productivity at the individual farm level;
3. Creation of employment opportunities;
4. Enhancing farm level economy (i.e. farm profits) to restore confidence amongst the farmers' (GOI, 2009:1).

For the 12th five year plan (2012-2017), the new objective is an 'additional production of food grains of 25 million tons of food grains comprising of 10 million tons rice, 8 million tons of wheat, 4 million tons of pulses and 3 million tons of coarse cereals by the end of 12th Five Year Plan' (GOI, 2012: 1). The objectives still include restoring soil fertility and enhancing the farm level economy.

School Health Programme

The School Health Programme (SHP) is part of the NRHM. The Programme has several components (GOI, n.d.), including: health screening, care and provision including screening for anaemia and

nutritional problems; immunisation; micronutrient management in the form of weekly iron-folate tablets and vitamin A in 'needy cases; de-worming; health promotion including counselling, yoga and physical services; capacity building; monitoring and evaluation and the Midday meal.

Swach Bharat Abhiyan (Clean India Campaign)

Launched in October 2014, *Swach Bharat Abhiyan* seeks to improve the cleanliness of India, particularly by ending open defecation by October 2019. The scheme is not the first sanitation campaign undertaken by the GOI; the Total Sanitation Campaign was launched in 1999, renamed *Nirmal Bharat Abhiyan* in 2012. As part of the overall *Swach Bharat Abhiyan*, the GOI launched a campaign for *Swachh Bharat: Swachh Vidyalaya* (Clean India: Clean Schools); 'A key feature of the campaign is to ensure that every school in India has a set of functioning and well maintained water, sanitation and hygiene facilities' (GOI, 2014d: 1). The GOI recognised the link between sanitation facilities and nutrition, stating that 'hygiene in school also supports school nutrition. The simple act of washing hands with soap before eating the school mid day meal assists to break disease transmission routes' (*ibid*: 1).

The National Food Security Act, 2013

The National Food Security Act (NFSA) was originally proposed as a Bill in 2011 and, after amendments, was officially passed in September 2013. The NFSA is 'An Act to provide for food and nutritional security in human life cycle approach, by ensuring access to adequate quantity of quality food at affordable prices to people to live a life with dignity and for matters connected therewith or incidental thereto' (*NFSA,* 2013). The Act entitles 'persons belonging to the eligible households' to up to 5kg of subsidised grain per month (3.2). Eligible households are entitled to grain at a price 'not exceeding rupees 3 per kg for rice, rupees 2 per kg for wheat and rupee 1 per kg for coarse grains for a period of three years from the date of commencement of this Act' (schedule I). The prices 'shall extend up to seventy-five per cent. of the rural population and up to fifty per cent. of the urban population' (*ibid*). Under the heading of 'women empowerment', the Act states: 'the eldest woman who is not less than eighteen years of age, in every eligible household, shall be head of the household for the purpose of issue of ration card' (13.1).

The scheme also entitles every pregnant woman and lactating mother, to a:

a) meal, free of charge, during pregnancy and six months after the child birth, through the local anganwadi, so as to meet the nutritional standards specified in Schedule II; and
b) maternity benefit of not less than rupees six thousand, in such instalments as may be prescribed by the Central Government' (4.a.b)

For children, the Act states:

a) in the case of children in the age group of six months to six years, age appropriate meal, free of charge, through the local anganwadi so as to meet the nutritional standards specified in Schedule II:

Provided that for children below the age of six months, exclusive breast feeding shall be promoted;

b) in the case of children, up to class VIII or within the age group of six to fourteen years, whichever is applicable, one mid-day meal, free of charge, everyday, except on school holidays, in all schools run by local bodies, Government and Government aided schools, so as to meet the nutritional standards specified in Schedule II

(2) Every school, referred to in clause (b) of sub-section (1), and anganwadi shall have facilities for cooking meals, drinking water and sanitation: Provided that in urban areas facilities of centralised kitchens for cooking meals may be used, wherever required, as per the guidelines issued by the Central Government...

8) In case of non-supply of the entitled quantities of food grains or meals to entitled persons under Chapter II, such persons shall be entitled to receive such food security allowance from the concerned State Government to be paid to each person, within such time and manner as may be prescribed by the Central Government.

In Chapter Xii, 'Provisions for Advancing Food Security' the Act states:

The Central Government and the State Governments shall, while implementing the provisions of this Act and the schemes for meeting specified entitlements, give special focus to the needs of the vulnerable groups especially in remote areas and other areas which are difficult to access, hilly and tribal areas for ensuring their food security. (30)

B.2 Supreme Court Orders from the Right to Food Case

The following provides selected contents of the Petition to the Supreme Court and the MDM-related content of the Supreme Court Orders.

B.2.1 Petition Under Article 32 Of the Constitution of India Seeking Enforcement of Right to Food

***(PeopleÔ Union for Civil Liberties v. Union of India,* Writ Petition (Civil) No. 196 of 2001)**

The petition raises the following questions of law public importance which need to be adjudicated by this Hon'ble court.

A. Starvation death is a natural phenomenon while there is a surplus stock of food grains in the Government godown. Does the right to life mean that people who are starving and who are too poor to buy food grains ought to be given food grains fee of cost by the State from the surplus stock lying with the State, particularly when it is reported that a large part of it is lying unused and rotting?
B. Does not the right to life under Article 21 of the Constitution of India include the right to food?
C. Does not the right to food, which has been upheld by the Hon'ble Court, imply that the State has a duty to provide food especially in situations of drought, to people who are drought affected and are not in a position to purchase food?

The facts leading to the petition are as under:

3. That there are innumerable cases of starvation deaths reported across the country. Starvation deaths are caused largely due to non-availability of food over a long period of time. Owing to the topography of our Country, there are certain areas that are drought prone and are in the grip of severe drought year after year. Consequently, there is no food available in the public distribution system outlets, and prices at commercial shops are exorbitant, making it impossible for people to purchase food grains. The relief measures provided, in case of drought and famine, are far from adequate and increasing numbers of people have been falling victim to starvation deaths. According to the Government of India figures, out of thirty-six crore people living below the poverty line, there are more than five crore people who have been victims of starvation. The petitioner craves leave to refer to and rely upon the said records at the time of hearing of this petition.

11. That the petitioner submits that there is no shortage of food in the country. Food grains are in surplus and are in fact rotting in godowns and warehouses of the Respondent No. 2. It is submitted that there are times when these grains are destroyed exported at throwaway prices or even allowed to be eaten by rodents instead of distributing them to starving people.

18. Meanwhile, close to 50 million tonnes of grain are lying idle in public godowns in Rajasthan and across the country. There is so much grain the Government's reserves that the Respondent no. 2, the Food Corporation of India has run out of storage space. In some cases, there is barely a distance of 75 kilometres between the location of these godowns and the places where starvation is rampant, people are malnourished, and cattle are dying.

21. Even in ordinary years, hunger and undernutrition are widespread in Rajasthan. According to the National Family Health Survey (1998-99(, for instance:

a More than half of all children below 3 years are undernourished.
b About half of all adult women suffer from anaemia.

26. In any organised society, the right to live as a human being is not ensured by meeting only the animal needs of man. It is secured only when a man is assured of all facilities to develop himself and is freed from all those restrictions that inhibit his growth. All human rights are designed to achieve this object. The Right to Life guaranteed in any civilised society implies the right to food, water, shelter, education, medical care and a decent environment. These are basic human rights known to any civilised society. The civil, political, social and cultural rights enshrined in the Universal Declaration of Human Rights and Convention or under the Constitution of India cannot be exercised without these basic human rights. [Chameli Singh v State of UP (1996) 2 SCC 549.]

> Per Bhagwati J: We think that the right of life includes the right to live with human dignity and all that goes along with it, namely, the bare necessaries of life such as adequate nutrition, clothing and shelter over the head and facilities for reading, writing and expressing oneself in diverse forms, freely moving about and mixing and commingling with fellow human beings. Franic Caralie v Union of Territory of Delhi (1981) 1 SCC, 608.

38. The Government of Rajasthan is providing subsidised food to only some BPL (below poverty line) families. This Petitioner has visited many villages where not a single BPL family has been provided with subsidised food. The official entitlement of BPL, families to subsidised food is 20 kg of wheat per household per month at Rs. 4.60 per kg. This provision is hopelessly inadequate for the following reasons:

45. Not only is shortage of resources as an unacceptable excuse, it is also untrue and misleading. Close to 50 million tonnes of grain (mainly wheat and rice) are lying idle in public godowns across the State and the country. In some cases, there is barely a distance of 75 kms between the location of these godowns and the places where starvation is rampant. There is an urgent human need, supplemented by practical considerations, to utilise a substantial portion of these food stock...

B.2.2 Supreme Court Order Of November 28, 2001

I. After hearing learned counsel for the parties, we issue, as an interim measure, the following directions:

3. Mid Day Meal Scheme (MDMS)

i. It is the case of the Union of India that there has been full compliance with regard to the Mid Day Meal Scheme (MDMS). However, if any of the States gives a specific instance of non-compliance, the Union of India will do the needful within the framework of the Scheme.

ii. We direct the State Governments/ Union Territories to implement the Mid-Day Meal Scheme by providing every child in every Government and Government assisted Primary Schools with a prepared mid day meal with a minimum content of 300 calories and 8-12 grams of protein each day of school for a minimum of 200 days. Those Governments providing dry rations instead of cooked meals must within three months start providing cooked meals in all Govt. and Govt. aided Primary Schools in all half the Districts of the State (in order of poverty) and must within a further period of three months extend the provision of cooked meals to the remaining parts of the State.

iii. We direct the Union of India and the FCI to ensure provision of fair average quality grain for the Scheme on time. The States/ Union Territories and the FCI are directed to do joint inspection of food grains. If the food grain is found, on joint inspection, not to be of fair average quality, it will be replaced by the FCI prior to lifting.

B.2.3 Interim Order of May 2, 2003

Regarding Mid Day Meal, on 28th November, 2001, this Court directed the State Government/Union Territories to implement the Mid Day Meal Scheme (MDMS) by providing every child in every Government and Government assisted Primary Schools with a prepared mid day meal with a minimum content of 300 calories and 8-12 grams of protein each day of school for a minimum of 200 days. It was further directed that those Governments which provide dry rations instead of cooked

meals, within three months start providing cooked meals in all Govt. and Govt. aided Primary Schools in all half the Districts of the State (in order of poverty) and must within a further period of three months extend the provision of cooked meals to the remaining parts of the State. Some States in implementation of the said direction are supplying cooked mid day meal to the students. We are, however, told that despite the fact that 1½ years has passed, some of the States have not even made a beginning. Particular reference has been made to States of Bihar, Jharkhand and Uttar Pradesh. It is not in dispute that in these three State even beginning has not been made whereas some of the other States are fully implementing directions for supply of cooked Mid Day Meal. Counsel for Uttar Pradesh and Jharkhand could not give any satisfactory reason for non-implementation. No reply or affidavit was filed by the said State. In so far as the State of Bihar is concerned, Mr. B.B. Singh has drawn our attention to the affidavit filed by Secretary and Relief Commissioner, Relief and Rehabilitation Department, Government of Bihar, inter alia stating that the State Government proposes to implement this scheme in few blocks on a pilot basis through panchayat, pending settlement of the issue regarding funding of conversion cost and to establish the capacity of the panchayat raj institution to supply hygienic cooked meals to all eligible students on a regular basis, without compromising teaching activities. The affidavit could not be more vague than what it is. When they propose to start, in how many districts they propose to start, what scheme has been formulated and every other conceivable detail is missing from the affidavit. We are told that there are 38 districts in the State of Bihar. For the present, we direct the said State to implement the cooked Mid Day Meal Scheme in terms of the directions of this Court in at least
10 District, which may be most poor according to the State's perception.

We also direct the State of Uttar Pradesh, Jharkhand and other States to make a meaningful beginning of the cooked Mid Day Meal Scheme in at least 25% of the District, which may be most poor.

B.2.4 Order Of April 20, 2004

... The petitioner has also made a reference to the announcement made by the Prime Minister extending the mid-day meal scheme upto 10th Standard during his address to the Nation on 15th August, 2003. The suggestion is that extension should be made operational at the earliest. In reply, it has been contended that once the mid-day meal scheme at primary level is consolidated, the question of extension of the scheme upto 10th Standard can be taken up in a phased manner. In this connection, it has been pointed out that the views of various States have been asked in regard to the cost and logistic requirements for the extension of the scheme upto 10th Standard.

...Having regard to the aforesaid, in respect of cooked mid-day meal scheme, we issue the following directions:

1. All such States and Union Territories who have not fully complied with the order dated 28th November, 2001 shall comply with the said directions fully in respect of the entire State/Union Territory, preferably, on the re-opening of the primary schools after a long vacation of 2004 and, in any case, not later than 1st September, 2004.
2. All Chief Secretaries/Administrators are directed to file compliance report in regard to directions No.1 on or before 15th September, 2004.
3. The conversion costs for a cooked meal, under no circumstances, shall be recovered from the children or their parents.
4. In appointment of cooks and helpers, preference shall be given to Dalits, Scheduled Castes and Scheduled Tribes.
5. The Central Government shall make provisions for construction of kitchen sheds and shall also allocate funds to meet with the conversion costs of food-grains into cooked mid-day meals. It shall also periodically monitor the low take off of the food-grains.
6. In respect of the State of Uttaranchal, it has been represented that the scheme is being implemented in all the schools. It would be open to the Commissioners to inspect and bring it to the notice of the Court, if it is otherwise.
7. In drought affected areas, mid-day meal shall be supplied even during summer vacations.
8. An affidavit shall be filed by the Government of India, within three months, stating as to when it is possible to extend the scheme upto 10th Standard in compliance with the announcement made by the Prime Minister. The affidavit shall also state the time frame within which the Government proposes to implement the recommendations of Abhijit Sen Committee in respect whereof the modalities have been discussed with the concerned Ministries and Planning Commission.
9. Attempts shall be made for better infrastructure, improved facilities (safe drinking water etc.), closer monitoring (regular inspection etc.) and other quality safeguards as also the improvement of the contents of the meal so as to provide nutritious meal to the children of the primary schools.

The issue as to the implementation of this scheme will be considered in the month of September, 2004.

B.3 Rights-based Policies in India

Right to Information Act, 2005

The National Campaign for People's Right to Information was launched in 1996, stemming from the work of the social movement *Mazdoor Kisan Shakti Sangathan* in Rajasthan (Association for the Empowerment of Workers and Peasants). The Campaign was established primarily to campaign for a national law on the right to information (Baviskar, 2010). Between 1996 and 2005, nine states established mechanisms to provide a right to information (*ibid*). In June 2005, a national right to information law was passed, which came into force in October of the same year. The Act gives Indian citizens the right to obtain information from public authorities. The Act was the first legislation to strongly use rights-based language (Chopra, 2014).

The National Rural Health Mission, 2005

The NRHM was described in Appendix B.1. Here, however, it necessary to point out that the mission is rights-based; access to health services has been framed as a right (Chopra, 2014).

Mahatma Gandhi National Rural Employment Guarantee Act, 2005

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) was passed in 2005 and was the product of interactions and negotiations between state and non-state actors (Chopra, 2011). The Act was launched in 2006 in 200 districts and launched in all districts in April 2008. The Act provides 100 days of employment to rural households per year and embodies the right to work (Chopra, 2014). The Act is inherently rights-based; rural households express their demand for work through the local government and the government has a duty to provide this work at a minimum wage (*ibid*).

The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006

The Recognition of Forest Rights Act provides a framework to establish the rights of forest dwellers, who have resided in forests for generations without recorded rights. The Act was passed in 2006 and came into force in 2007.

The Right of Children to Free and Compulsory Education Act, known as The Right to Education Act (RTE) 2009

Passed in 2009, the RTE Act established free and compulsory education to children aged between 6 and 14 years. The Act came into force in 2010. The Act established the duty of the government to provide free education.

B.4 Social Protection Schemes in India

Table B.1: Social Protection Schemes in India

Type	Scheme	Year launched	Purpose	Benefits
Public Works (Protective and preventative	Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)	2005	Provides paid employment in unskilled manual labour to rural households.	100 days of paid employment per year per rural household.
Food subsidies (Protective)	Targeted Public Distribution Scheme (TPDS)	PDS since pre-independence, revamped PDS in 1992, Targeted PDS since 1997).	The distribution of grain and other commodities through Fair Price Shops at a subsidised price to priority households (up to 75 percent of the rural population and 50 percent of the urban population).	5kg of grain per person per month in each priority household at a maximum price of three rupees per kg of rice, two rupees per kg of wheat and one rupee per kg of coarse grain.
	Antodaya Anna Yojana (AAY)	2000	Ration card to the poorest of BPL households, entitling them to additional food grain.	35kg of per household per month at specified prices.
	Annapurna Anna Yojana	2000	Special ration cards to the destitute over 65 years of age that do not receive another pension.	10kg of grain per month through the PDS.
Supplementary and School Feeding (Promotional)	Midday Meal Scheme (MDMS)	1995	Free hot, cooked lunch to children in class I to VIII or aged six to 14 in in government and government-assisted schools.	Free midday meal everyday (except school holidays). 450 calories and 12g of protein for lower primary and 700 calories and 20g of protein for upper primary students.
	ICDS	1975	Food for children under the age of six and for pregnant and lactating mothers.	Children below the age of six should receive food equal to 500 calories and 12-15g of protein. Pregnant and lactating women should receive 600 calories and 18-20g of protein. Malnourished children should receive 800 calories and 20-25g protein.

Type	Scheme	Year launched	Purpose	Benefits
Conditional Cash Transfer (Preventative)	*Janani Suraksha Yojana (JSY)*	National Maternity benefit scheme launched 1995 and then modified into JSY in 2005.	Provides a financial incentive for women to give birth in a health facility.	In low performing states (those with a low number of institutional deliveries), mothers receive 1400 INR in rural areas and 1000 in urban areas. In high performing states, mothers receive INR 700 in rural areas only. Health worker also receives INR 600 in rural areas and INR 400 in urban areas.
Unconditional cash transfers (protective)	The Indira Gandhi National Old Age Pension Scheme (IGNOAPS)	1995	Pensions to BPL senior citizens (above 60) with no means of subsistence.	INR 200 per person per month for those between 60 and 79 years, Rs.500 for those above the age of 80.
	National Family Benefit Scheme (NFBS)	1995	Cash to BPL families on the death of the primary breadwinner aged 18 to 60.	Payment to BPL families of INR 20,000 after the death of the primary earner.
Unconditional cash transfers (protective) continued	Indira Gandhi National Widow Pension Scheme (IGNWPS)	1995	Monthly pension to BPL widows above the age of 40.	INR 300 rupees per month, INR 500 rupees for those above the age of 80.
	Indira Gandhi National Disability Pension Scheme	1995	BPL, above 18 and with more than 80% disability.	INR 300 per month, INR 500 for those above the age of 80.
Unconditional cash transfers (protective) continued	*Pradhan Mantri Awaas Yojana* (previously Indira *Awaas Yojana*)	1985	Grant to BPL houses to construct a house or upgrade a *kaccha* (non-brick) house.	INR 70,000 or 75,000 in hilly/remote areas.
Contributory social insurance (preventative)	*Rastriya Swasthya Bima Yojana* (RSBY)	2008	Health insurance for BPL households and specific categories of workers including street	Hospitalisation coverage up to INR 30,000 per family per year, for a registration fee of INR 30.

			vendors, domestic workers, rickshaw pullers and rag pickers.	
Type	**Scheme**	**Year launched**	**Purpose**	**Benefits**
Contributory social insurance (preventative) continued	*Pradhan Mantri Suraksha Bima Yojana*	2015	Accident insurance for death, full and partial disability.	For INR 12 per annum, receive payment in the event of death (loss of use of both eyes, hand or foot or use of one eye and one hand or foot (2 lakh), loss of use of one eye of hand or foot (1 lakh).
	Pradhan Mantri Jeevan Jyoti Yojana	2015	Life insurance for the death of an adult between 18-55 years old	Pay premium INR 330 per annum and in the event of death INR 2 lakh is paid to the nominee.
	Atal Pension Yojana (APY)	2015	Pension scheme for unorganised sector who are not part of any other social security scheme.	Receive a fixed pension on retirement between INR 1000 and 5000 per month depending on the extent of their contribution.

B.5 India's Food-Based Schemes

Table B.2: A tabulated bibliography of selected literature on India's food-based social protection schemes

Publication	Location	Sample Size	Outcome	Findings
PDS				
Drèze and Khera (2013)	India	NSS 2009-2010	Poverty	Estimate that the PDS reduces the poverty-gap index of rural poverty by 18% to 22%. Figures are much larger for states with a well-functioning PDS such as Tamil Nadu (61% to 83%) and in Chhattisgarh (39% to 57%).
Kaushal and Muchomba (2015)	India	NSS 1993-4, 1999-2000, 2004-2005	Consumption	Consumption patterns changed in favour of the subsidised grains and certain more expensive sources of calorie, and lowered consumption of cheaper coarse grains. No effect on calorie, protein and fat intake. Some income spent on non-food items.
Khera (2011)	Rajasthan	388 HHs, 8 villages	Consumption	Does not affect the total level of cereal consumption, but causes a shift away from coarse grains.
Kishore and Chakrabarti (2015)	India	5 rounds of NSS surveys	Consumption	Reforms in TPDS increased the quantity of rice purchased under PDS and poor households use the money saved on rice expenditure to purchase non-cereal food items.
Kochar (2005)	9 states	NSS 1993 and 1999–2000.	Consumption	Greater income transfers did not lead to greater calorie consumption.
Krishnamurthy *et al*. (2014)	Chhattisgarh	NSS 1999-2000 and 2004-2005	Consumption	Increased their consumption of pulses, animal-based protein, and produce relative to households in districts bordering the state as the availability of subsidized rice expanded.
Radhakrishna *et al*. (1997)	Andhra Pradesh	NSS data 1986-1887	Poverty and Nutrition	Minimal impact on poverty and nutritional status, and even that was at a high financial cost.
Rahman (2016)	Odisha	8 districts	Consumption	With universal PDS: macronutrient consumption increased by 32%, dietary quality improved by 37% and ration of macronutrient intake to RDA increased by 17%.
Tarozzi (2005)	Andhra Pradesh	NFHS 1992-93	Nutrition	Increased prices of rice in the PDS (decrease in subsidy equivalent to 5% of the total household budget). Did not lead to worse nutritional outcomes measured as weight-for-age.

Publication	Location	Sample Size	Outcome	Findings
PDS and MDMS				
Himanshu and Sen (2013a)	India	NSS	Poverty	Poverty reducing impact increased: lifted 1.3% of the population above the poverty line in 1993-1994, 2.6% in 2004-2005 and 4.6% 2009-2010.
Himanshu and Sen (2013b)	India	NSS	Consumption	Calorie intake declined by 15% between 1993-1994 to 2009-2010, but this decline was only 8% for those who bought PDS cereals and over 20% for those who did not. Thus, they consider that without the PDS, the proportion of people consuming fewer than 1800 calories per day would increase from less than 40% of the population to 50%.
PDS and MGNREGS				
Jha *et al.* (2011)	AP, MH, RJ	7,124 HHs	Consumption	Significant impacts of both PDS and NREGS scheme on the intake of protein, energy and micronutrients, however, this varies by state.
ICDS				
Agarwal *et al.* (2000)	Varanasi, Uttar Pradesh	49 villages, 4117 births	Nutrition (maternal weight and birth weight)	The ICDS supplemented mothers +100g more in pregnancy and birth weight was higher by 58 g than un-supplemented ICDS mothers. 14.4% of the women who received ICDS supplementation had a LBW, compared to 20.4% of those not receiving the supplementation.
Bhasin *et al.* (2001)	Delhi	1,243 children	Nutrition	Children attending *anganwadis* were nutritionally better-off than those that were not. A multiple logistic regression did not find *anganwadi* attendance to explain the difference in nutrition.
Kandpal (2011)	India	NFHS-3	Nutrition	Controlling for placement design, ICDS increases height-for-age scores by 6%.
Jain (2015)	India	DHS 2005-2006	Nutrition	Increased height 1 cm (0.4 z-score) for girls aged 0-2 years. Findings similar for boys, but less robust.
Lokshin *et al.* (2005)	India	NFHS data 1992, 1998- approximately 90,000 HHs per survey	Nutrition Implementation	Little overall effect. Only significant positive effect was on boys' stunting in 1992. Disaggregated results found significant negative impact in the poor Northern states and North-eastern states. States with the biggest need (high rates of child malnutrition) had the lowest coverage and budget

Publication	Location	Sample Size	Outcome	Findings
Prinja *et al*. (2008)	Haryana	60 ICDS centres, 408 children, their mothers	Implementation (advice)	Advice on breastfeeding given to 179 (43.8%) mothers and advice on complementary to 139 (34.1%)
Saiyed and Seshadri (2000)	Gujarat	610 children 0-36 months	Nutrition	Utilisation of all services significantly improved nutritional status, measured using height-for-age, weight-for-age and weight-for-height. Full utilisation also decreased the frequency and duration of episodes of illness.
Saxena and Srivastava (2009)	India	NFHS-3 data	Nutrition	Children in areas without an *anganwadi* are more likely to be undernourished, as are children who have not seen an *anganwadi* worker in the previous three months compared to those that have. Whether the child received early childhood care at the *anganwadi* significantly affects nutritional status.
MGNREGS				
Das and Singh (2014)	India	District level household survey	Children's education	No significant impact on children's education. Negative impact on girls' education, although not significant.
Deiniger and Liu, (2013)	Andhra Pradesh	4,000 households	Consumption Wealth	Protein and energy intake significantly increased. Accumulate non-financial assets in the medium-term.
Jha *et al*. (2011)	Andhra Pradesh, Maharashtra, Rajasthan	7,124 households	Consumption	Significant impacts of both PDS and NREGS scheme on the intake of protein, energy and micronutrients, however, this varies by state.
Klonner and Oldiges (2014)		NSS and district-wise rollout of scheme	Consumption Poverty	Large effects on food consumption among SC/ST households and smoothed consumption across seasons. Increased by as much as 30% in spring. Halved poverty for SC/ST households.
Kumar and Joshi (2013)		NSS 2009	Poverty Consumption	Reduced poverty level by 4%. *Could* increase consumption of cereals and non-cereals due to increased income. Observed diversification of diets. Decreased undernourished and nutrition-deficit households by 8-9%.

Publication	Location	Sample Size	Outcome	Findings
Nair *et al*. (2013)	Rajasthan	528 households, 1056 participants	Nutrition	Households participating in MGNREGA were less likely to have wasted infants. Possibly due to increased birth weight rather than increased infant feeding. Stunting did not differ.
Ravi and Engler (2015)	Andhra Pradesh	1064 households, 198 villages	Income Consumption Well-being	Significantly increased monthly per capita food and non-food expenditure. Raised the probability of having savings. Significant reduction in the number of meals foregone. Reduced depression.
Pensions				
Dutta *et al*. (2010)	Karnataka and Rajasthan	4,070 households	Coverage	A large proportion reach the vulnerable. Compared to PDS, social pensions have low levels of leakage. Either due to lack of discretion involved or the small transfer.
Gupta (2013)	Chhattisgarh and Jharkhand	60 people	Overall perceived impact	One in two felt the national old age pension helped meet essential needs, but that the amount was insufficient. Scheme functioned with little corruption. Limited by banking system and delays.
Maternity Benefits				
Lim *et al*. (2009)	India	Two nationwide district-level household surveys (+600,000 in each)	Health and care.	Significant effects on increasing antenatal care and in-facility births. Decreased perinatal and neonatal deaths.

B.6 School-feeding Programmes

Table B.3: Details of selected SFPs (Drake *et al*., 2016)

Country	Name of SFP	Mode	Targeting	Number of recipients	Focus	Energy % RDA	Protein % RDA
Botswana	National School Feeding Programme	OSF (1 meal, 2 in remote areas)	Universal	333,000	Agriculture, Education	33	29
Brazil	*Programa Nacional de Alimentação Escolar* (PNAE)	OSF- breakfast, lunch or snack	Universal	42.3 million (2014)	Agriculture	58	65
Cape Verde	National School Nutrition Programme	OSF	Universal	85,079 (2011-201)	Education	28	22
Chile*	*Programa de Alimentacion Escolar* (PAE)	OSF breakfast and/or lunch	Individual	1.85 million (2012)	Education, health and nutrition	15	18
Côte d'Ivoire*	*Programme Intégré de Pérennisation des Cantines Scolaires* (PIP/CS)	OSF	Geographic	265,000 (2009)	Agriculture, Education	55	51
Ecuador	School Food Programme	OSF breakfast (some schools also provide fortified milk and biscuits)	Universal	1.78 million (2011)	Education	19	24
India*	Midday Meal Scheme	OSF	Universal	119.4 million (2006)	Education	35	28
Ghana	The Ghana School Feeding Programme	OSF	Geographic (Schools)	1.64 million	Agriculture, Education, Health and nutrition	-	-
Kenya HGSM	Home Grown School Meals Programme	OSF	Geographic	762,715 (2013)	Education	34	30
Kenya NMK	***Njaa Marufuku Kenya***	OSF	Geographic	63,000 (2013)	Agriculture	34	30

*The details for India are also taken from Drake *et al*. (2016). As shown in Chapter 4 and 5 respectively, the scheme is not purely for educational purposes and is not entirely universal.

B.7 Outcomes of SFPs

Table B.4: A tabulated bibliography of the literature on the outcomes of SFPs: a non-exhaustive review

Study	Location	Sample	Form	Outcome	Findings
Ahmed and Del Ninno (2002)	Bangladesh	600 HHs	Conditional THRs	Enrolment	+42% for girls, +28% for boys.
				Attendance	70% in schools receiving food, 58% in those not. Dropout rates - 6% for beneficiary students and 15% for non-beneficiaries.
				Performance	Test scores lower for beneficiaries, likely due to socio-economic background
Ahmed (2004)	Bangladesh	+5000 HHs, 1648 students	Fortified biscuits	Enrolment	+14.5%
				Attendance	+1.3 days per month. Dropouts - 7.5%.
				Performance	+ 15.7 points test scores
				Nutrition	BMI +0.62
Alderman and Bundy (2011)	Uganda	Not stated	THR and OSF	Performance	+ math scores children aged 11-14. No change in literacy tests. At the primary level, only THR had a significant impact on tests.
				Nutrition	Reduced prevalence of anaemia in girls aged 10-13 receiving school feeding in Uganda compared to a control group. OSF increased the height of siblings by 0.36 SD. THR has no effect.
Alderman *et al*. (2012)	Uganda	31 camps	OSF and THRs	Enrolment	No overall increase, but 9% increase in children aged 6-13 who started school.
				Attendance	+ 8-12 percentage points aged 10-17 in the morning + attendance girls from OSF + effect boys 10-17 years from THRS + impact of both on afternoon attendance excluding 10-13 year olds for THRs.
Buttenheim *et al*. (2011)	LAO	4,500 HHs	THR and OSF	Enrolment	Little evidence. THR and OSF increased enrolment in two locations, but not a third.

Study	Location	Sample	Form	Outcome	Findings
Gelli *et al*. (2007)	32 countries sub-Saharan Africa	4715 schools	THR and OSF	Enrolment	+28% for girls, +22% for boys. After the first year, increase only sustained for girls receiving both OSF and THR.
Gelli (2015)		-	THR and OSF	Enrolment	+10% (OSF having a stronger effect in the first year)
Grantham-McGregor *et al*. (1998)	Jamaica	200 children	Breakfast	Performance	Undernourished children performed better after breakfast, no change for adequately nourished children.
Grillenberger *et al*. (2003)	Kenya	554 children	OSF (snack)	Nutrition	+ approximately 0.4kg from supplements (meat, milk)
Kazianga *et al*. (2009; 2012)	Burkina Faso	2208 HHs	OSF and THR	Enrolment	+ 6% for girls receiving both OSF and THRs. No significant change in enrolment of boys was not significant
				Attendance	+ in households with large labour supply, decreased in those with a small labour supply
				Nutrition	THRs increased weight of the siblings (1-5 years old) by 0.38 SD. OSF had no impact.
Kristjannson *et al*. (2007)	Review of 18 studies		SFPs	Attendance, Performance	+4-6 days per year Significant positive impact on arithmetic. Results from intelligence tests are inconclusive.
				Nutrition	+ 0.39kg over 19 months in randomized controlled trials. +0.71kg over 11.3 months in before and after studies.
Jacoby (1996)	Peru	356 children	Breakfast	Nutrition	Significant increase in dietary intakes: energy (15.2%), protein (16.1%), iron by 60%, and improved rates of attendance.
				Attendance	Reported by teachers
Jacoby *et al*. (1998)	Peru	+200	Breakfast	Nutrition	Increased intakes of energy, protein, zinc, iron, vitamin A, iron. Decline in anaemia from 66% to 14% in six months
McEwan (2013)	Chile	8727 primary schools	OSF	Enrolment, attendance Performance	No effect due to higher calorie meals (but baseline enrolment already high and no data on calorie consumption and redistribution). Higher calorie meals had no effect on test scores

Study	Study area	Study Year	Sample	Focus
Powell *et al*. (1998) Jamaica	407	Breakfast	Attendance	+2.3% (4 days)
			Performance	+ 0.11 SD for the youngest children arithmetic. No effect on reading/ spelling.
			Nutrition	small but significant increases in height and weight for children receiving breakfast compared of the control group
Ravallion and Wodon (2000)	Bangladesh	c.5000	THRs	Other	Increase enrolment and attendance reduce child labour
Simeon (1998)	Jamaica	115 (90 for lack of breakfast)	OSF	Attendance	Improved for those consuming the meal.
				Performance	Improved for those consuming the meal. When malnourished children consumed no breakfast, performance deteriorated.
				Weight	No weight gain
Vermeersch and Kremer (2004)	Kenya	c.5000	Breakfast	Enrolment	Positive impact, although increase in class sizes reduced the quality of education receive
				Attendance	+ 30%
				Performance	+ (only in schools with teachers with greater experience)
				Nutrition	+ weight boys. No change weight for girls or height for either.
Whaley *et al*. (2003)	Kenya	555	Milk, meat or energy supplements	Performance	+0.15 SD maths, + 0.16 SD non-verbal reasoning, no change verbal reasoning.
Developed Countries				
Bhattacharya *et al*. (2006)	US	4841	Breakfast	Nutrition	No significant impact on calories consumed or consumption of breakfast. Children with access to the breakfast program consumed fewer calories from fat, more likely to meet recommended intake of fibre, potassium and iron.
Gleason and Suitor (2003)	US	1,680	OSF	Nutrition	Significantly higher intakes of vitamin A, vitamin B6, vitamin B12, thiamin, riboflavin, folate, calcium, magnesium, phosphorus, iron, and zinc than non-participants. Participants consumed more fat and protein at lunch.
Hinrichs (2010)	US	National surveys	OSF	Performance	+10 percentage points
				Attendance	+ 0.365 years of education among women, nearly 1 year among men
				Health	No long-term effect

B.8 FAO Modules on Rights-based SFPs

The FAO (2008: 150-157) modules and associated questions for rights-based school-feeding programmes are as follows:

Module 1: Food and Nutrition Security Situation

- What are the main food and nutrition problems?
- Which population groups are most affected?
- Where are these located?
- What are the principal causes of these problems?
- Which food and nutrition problems affect school-age children, by age and gender?
- Where are these problems most severe?
- What livelihood characteristics do the households have to which food insecure and vulnerable children belong?

Module 2: Policy, Legislative and Budgetary Framework

- What is the policy basis for the SFP? Is school-based feeding seen as a nutrition programme or a social relief programme?
- How does the SFP relate to policy priorities?
- What legislative mandate exists for the programme?
- What budgetary appropriations are made, and are these included in the regular budget or a special budget?
- What is the funding history in terms of budgetary allocations and expenditures?
- Which are the budgetary contributions, obligations or commitments of the different levels of government to the programme?

Module 3: Institutional Framework of the Programme

- Which institutions at national and local levels are responsible for designing, implementing, managing and monitoring the SFP?
- What is the capacity of these institutions in their respective roles? Are their roles clearly mandated? How strong are inter-institutional linkages and coordination?
- Are their mechanisms in place that effectively allow rights holders', representatives and other duty bearers to hold these institutions accountable for non or poor performance?

Module 4: Normative Basis of the Programme

What are the programme norms and standards with respect to:

- Intended beneficiaries?
- National nutrition guidelines (RDAs for energy and nutrients), approved national menu options, food diversity, conformity with local eating habits?
- Provision of nutritional benefits?
- Food delivery and handling (food types, school-based infra-structure (kitchen, food storage, eating space), trained kitchen staff, food preparation hygiene)?
- Associated school-based infrastructure: access to clean drinking water, basic sanitation?
- Food quality and safety?
- Food acquisition: sources of food acquisition; use of commercial foods; protection from marketing of processed foods in school?
- Associated curricular and non-curricular activities?
- Per child allocation of funds?

- Handling of funds and accounting of expenditures?

Module 5: Social Control Mechanisms

- Is there a social control instrument to monitor the implementation and quality of the Programme? In case there is, what is the mandate of this council or committee? What is its composition? How are the members selected or appointed? Is there direct representation of parents, local producers and of the different duty bearers?
- What are the instruments available to the council/committee to promote remedial actions in programme implementation, or to promote compensation for a violation, in case it is needed?

Module 6: Recourse Instruments and Institutions

- Are there any claim or recourse instruments available to students and parents in case the public sector does not meet its obligations under the programme?
- Which institution(s) is (are) in charge of receiving, analysing and providing an official response to claims that are received?

Module 7: Programme Design

- Is the programme designed to address one or more major food/nutrition problem that affects a majority of children?
- What are the intended food-based and non-food based impacts of the programme? Do these intended impacts reflect a holistic approach, recognising linkages among the fulfilment of several rights over and above the right to adequate food, like the rights to education, health, enjoyment of leisure, etc.?
- How does the programme propose to contribute to decreasing the food and nutrition problems among school-age children? Does the programme have other, non-food objectives, for example, increased school enrolment, enhancement of active learning capacity, improved school attendance, increase children's access to non-curricular learning activities, reduce school drop-out rates, or greater understanding of broader social problems?
- Is the programme designed to target children who suffer most from food and nutrition problems and food related diseases – celiac disease, diabetes, etc.?
- What criteria and indicators are used for targeting (individual, geographic, nutritional status, etc.)? Are targeting criteria well described and do these reflect equality of access to the SFP? How well are duty bearers at different levels, and rights holders' representatives aware of and understand these criteria? Did rights holders' representatives participate in establishing these criteria? If entry and exit criteria are involved, how well are these understood by duty bearers and rights holders?
- Does the programme design anticipate community participation in programme decision making and/or implementation, and if so, in what ways? What mechanisms for joint decision making and monitoring of school feeding guidelines are in place, and are these effective? What will be done to maintain constant communication between duty bearers and the community?
- How are programme costs at the school level covered? Is the community required to contribute, and if so, in what form(s) and did the community participate in deciding what its contribution should be? Are there fluctuations in funding availability, and if so, how does this impact on delivery?

Module 8: Programme Duty Bearers

- Do duty-bearers (national authorities, local/community authorities, school authorities/staff and, somewhat differently, parents) understand their responsibilities and is there evidence they act accordingly? Have duty-bearers been asked to account for their performance?

- Do rights holders' representatives understand the responsibilities of different duty bearers? Do duty-bearers and rights-holders' representatives understand the norms?
- Does the programme routinely assess duty bearers' capacity to assume their responsibilities, and makes efforts to strengthen capacities? If so, what capacities are strengthened and does this lead to better performance? If patterns of violations are identified, are there measures to adopt remedial procedures or, at least, review these patterns?

Module 9: Programme implementation

- To what extent does programme implementation conform to norms and standards – see Module 4 above? Where are there divergences, and what explains this? Is there evidence that efforts were made in the past to bring programme implementation closer in line with norms and standards?
- Are there differences in implementation processes and procedures among geographic areas, and if so, what explains these differences? Is there evidence that efforts were made to correct this?
- How well is the targeting scheme applied, and how effective is it in ensuring programme coverage of the intended target groups? Are under-coverage and leakage rates high or low? Are there geographic differences in programme coverage rates, and if so, what explains this? Is there evidence that efforts have been made to improve effective coverage rates of the target groups, and if so, with what results?
- Does programme monitoring take place, and if so, at what level(s) and who participates in programme monitoring? What purpose(s) does programme monitoring serve? Is there evidence that monitoring results have had an impact on changing programme design and/or implementation, or external to the programme on policy formulation, institutional changes and/or legislative priorities? Is the acquisition of food items for the programme made from local agricultural producers? In case it is not, what are the implications of these "food imports" for local eating habits and production? What is the impact of these purchases on local food and nutritional security?

Module 10: Programme Impacts

- What are the programme impacts, and how do these compare with programme objectives? Are there unforeseen programme impacts, and who do these affect? Are there negative programme effects, and if so, who do these affect? Is there evidence that participation in the programme has led to empowerment of non-programme persons, and if so, who has benefited and in what ways?
- Do programme impacts differ among various geographic areas, and if so, what may explain this? Were efforts made, for example by changing the programme design, to correct this?
- Do programme impacts differ by gender, age group, or socio-economic levels? If so, what may explain this, and is there evidence that efforts were made to correct this?
- Is there evidence that the programme impacts are in line with the priorities of the community?
- Are the programme design and the implementation process flexible enough so that the programme can adjust to future needs and changing priorities? Is it likely that the availability of programme resources will outlast a given political mandate? Will part of the programme be institutionalised in sector activities, or be incorporated in sector plans? Are human and other resources likely to be sufficient to sustain the programme and its desirable impact

B.9 Literature on the MDMS

B.9.1 Introduction

Table B.5 presents the details of studies on the MDMS. This is an exhaustive list; however, excluded are: literature that could not be accessed (Pathania and Pathania, 2006); literature that discussed the scheme in the context of other interventions only (Chhabra and Rao, 2014; Fiedler *et al*., 2012; Radhika *et al*., 2011; Rah *et al*., 2013); and literature that discusses the scheme superficially, in passing or does not contribute new knowledge (Alim *et al*., 2012; Bajaj, 2012; Baru, 2008; Shrivastava *et al*., 2014). As shown in Table B.5, some studies had methodological limitations (Deodhar *et al*., 2010; Josephine and Raju, 2008; Kaushal, 2009) and others failed to present evidence to support the conclusions made (Shalini *et al*., 2014; Sharma *et al*., 2010). These studies are included in Table B.5, but are deemed of low quality and therefore are not included in the review of the MDMS presented in Chapter 2.

After detailing the studies on the MDMS, I then present the studies on the outcomes of the MDMS (Table B.6) and the implementation of the scheme (Table B.7). These tables supplement the review provided in Sections 2.6.3 and 2.6.4.

B.9.2 Literature on the MDMS

Table B.5: Literature on the MDMS

Source	Study area	Study year	Sample size	Peer Review	Focus	Significant Limitations
Afridi (2005)	11 blocks, 1 district, Madhya Pradesh	2004	615 households	Yes	Organisation	
Afridi (2010)		2004	1,096 children	Yes	Impact	
Afridi (2011)		2004	74 schools	Yes	Impact	
Afridi et al. (2013)	Delhi	2009-2010	18 schools, 1213 students,	No	Performance	
Ali and Akbar (2015)	8 Districts, Uttar Pradesh	Not Stated	2,400 primary students,480 schools	Yes	Preference	
Blue (2005)	7 villages,3 blocks, 1 district, Rajasthan	Not stated	8 schools. 11 teachers, 63 parents and 67 students.	No	Implementation/Impact	- Small sample size - Opinions only
Bhoite and Iyer (2011)	Vadodara, Gujarat	Not stated	1503 students, 4 schools	Yes	Nutrition and MDM consumption	- Small sample - Does not show the impact on nutrition, just nutritional status
Deodhar *et al*. (2010)	Ahmedabad, Gujarat	Not stated	"a few schools in Ahmedabad", 3 locations and 1 centralised kitchen	Unknown	Implementation	- Small sample - Lacks a rigorous methodology
Drèze and Kingdon (2001) (PROBE study)	122 villages across Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh	1999	136 schools, 4,400 children, their households and schools.	Yes	School Participation	
Drèze and Goyal (2003) (Centre for Equity Studies survey)	81 villages, 9 villages in 9 districts, 3 districts- Chhattisgarh, Karnataka, Rajasthan.	2003	81 schools, 324 households	Yes	Impact/ Implementation	- Shows an increase in enrolment but unable to say the extent due to the MDMS

Source	Study area	Study year	Sample size	Peer Review	Focus	Significant Limitations
Garg and Mandal (2013)	4 tehsils, 1 district, Rajasthan	Not stated	8 schools. 176 students, 176 households, 8 teachers.	Yes	Impact for marginalised	- Small number of schools
Jain and Shah (2005)	70 villages, 10 villages in 7 blocks in 7 districts Madhya Pradesh	2004-2005	70 schools, 279 parents, 69 teachers, 70 cooks, students	Yes	Implementation	
Jayaraman and Simroth (2015)	13 states	2002 to 2004	420,000 schools	Yes	Enrolment	
Josephine and Raju (2008)	6 educational districts, Andhra Pradesh	Not stated	Not stated	No	Implementation (PPPs)	- Anecdotal evidence - Conclusions not supported by evidence
Kaushal (2009	Jaipur, Rajasthan	Not stated	11 schools	No	Implementation	- Schools chosen by the Education Department - Small sample
Khera (2006)	NA	NA	NA	Yes	Review	-
Khera (2013)	NA	NA	NA	Yes	Review	-
Lok Adhikar network (2002) (in (Khera 2002)	41 villages, 1 District, Rajasthan	2002	63 schools	Yes	Impact	-
Mamgain and Diwaker (2012)	NA	NA	NA	Yes	Review	-
Mehta *et al*. (2013)	1 district, Punjab.	2010-2011	20 schools, 200 students	Yes	Nutrition	-
Mittal and Srivastava (2006)	1 area, 1 district West Bengal	Not stated	150 children	Yes	Nutrition	-
Paul and Mondal (2012)	1 district, West Bengal	2010-2011	300 students	Yes	Performance	- Based only on opinions
PEEP (Drèze *et al*., 2015)	8 villages, two of the poorest districts, 10 states	2013	1926 households and 12 pensioners per village	No	Implementation	-

Source	Study area	Study year	Sample size	Peer Review	Focus	Significant Limitations
Planning Commission (2010)	5 schools per block, 2 blocks, 48 districts, 17 states	2007	480 schools, 4800 students, approximately 480 parents, 120 dropouts	No	Impact/ Implementation	-
Pratichi Trust (2005)	27 villages, 3 blocks, 1 district, West Bengal	2004	30 schools, 300 households	No	Impact	-
Samson *et al*. (2008)	6 areas, Delhi	mid-2005	12 schools in 6 areas, 60 households	No	Implementation	-
Sharma *et al*. (2010)	Mathura district, Uttar Pradesh	2006-2007	14 schools (8 receiving meal)	Yes	NGO vs non-NGO	- Does not show the change in Vitamin A deficiency is a product of MDM consumption - Small sample
Si and Sharma (2008)	2 schools per block, 5 blocks, 1 district, Odisha	2004	10 schools, 150 households	Yes	Impact	- Lack of data - Do not show increase in enrolment is the result of the MDMS
Singh (2008)	Andhra Pradesh	2002, 2006/2007	2,944 students in two cohorts	No	Performance, Nutrition	-
Singh *et al*. (2014)	Andhra Pradesh	2002 and 2006/2007	1,950 children	Yes	Impact	-
Shalini *et al*. (2014)	Bengaluru		4,378 students	Yes	Nutrition	- The conclusion, that malnutrition would have been greater in the absence of the MDMS is not based on evidence.
Shankar and Natasha (2010)	Delhi and Ahmedabad	2010	12 schools	No	Implementation	- Small sample size

Source	Study area	Study year	Sample size	Peer Review	Focus	Significant Limitations
						-
Shukla (2014)	Delhi	2014	14	Yes	Implementation	- Small sample size
Sikligar (2011)	1 block, per district, per state, TN, GJ, HP, AP, UP, WB	2006-2008	240 schools	No	Implementation and Impact	- Fails to show impacts at the result of the MDMS
Swaminathan *et al*. (2004)	Chennai and 1 rural district Tamil Nadu	Not stated	11 schools, 1 district	Yes	Impact	- No sampling procedure for the selection of schools
Thorat and Lee (2005) (Indian Institute Dalit Studies Survey)	531 villages, Andhra Pradesh, Bihar, Rajasthan, Tamil Nadu and Uttar Pradesh	2003	531 villages	Yes	Discrimination	-

B.9.3. Outcomes

Table B.6: A tabulated bibliography of the literature on the outcomes of the MDMS

Source	Study area	Study year	Sample size	Outcome	Findings
Afridi (2010)	Chindwara district, Madhya Pradesh. 11 blocks, 41 villages.	2004	1096 children	Nutrition	Intake + 49-100% of transfers. Reduced deficiencies in protein by 100%, calories by 30% and iron by 10%.
Afridi (2011)	Madhya Pradesh, 41 11 blocks.	2004	74 schools	Attendance	+ 12% Grade 1 girls No significant impact for boys
Afridi et al. (2013)	Delhi	2009-2010	18 schools, 1213 students,	Performance	Significant improvement in performance in grade 7. Improvement classroom concentration and effort. Influenced by school quality.
Blue (2005)	Udaipur District, Rajasthan		8 schools. 11 teachers, 63 parents and 67 students.	Food consumption.	30 parents said children ate less at home and 31 reported no change

Source	Study area	Study year	Sample size	Outcome	Findings
Drèze and Kingdon (2001) (PROBE study)	Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh	1999	4400 children, their households and schools.	Attendance	Chance of girls completing primary 30 percentage points higher in villages receiving MDM
Drèze and Goyal (2003) (Centre for Equity Studies survey)	Chhattisgarh, Karnataka, Rajasthan. 81 villages	2003	81 schools, 324 households	Enrolment	+14.5% Grade I + 19% Girls July 2001- July 2002.
				Attendance	Qualitative indicators of increased attendance- from parents and teachers.
Garg and Mandal (2013)	Jaipur, Rajasthan. 4 tehsils	Not stated	8 schools. 176 students, 176 households, 8 teachers.	Enrolment	Increased enrolment (approximately 5%) Parents attributed this to the MDMS. Increased enrolment among girls, from 50-100%.
				Attendance	Increased attendance among girls, from approximately 50-90%. Not significantly increased attendance among boys
				Performance	No impact- SCs and STs lag behind other children. Significant difference in scores by caste
				Food Intake	Food intake of ST children higher on school day compared to holiday. The opposite trend is found for SC, OBC and General caste children.
Jain and Shah (2005)	Madhya Pradesh	2004-2005	70 schools, 279 parents, 69 teachers, 70 cooks, students	Enrolment,	+ 36% Grade 1, +31% Girls, +43% SC/ST children, +41% SC/ST girls. Teachers reported improved enrolment.
				Attendance	Teachers reported improved attendance
Jayaraman and Simroth (2015)	13 states	2002 to 2004	420,000 schools	Enrolment	+13% primary, +24% Grade I No enrolment response grades II-V
Lok Adhikar network (2002) (in (Khera, 2002)	Barmer District, Rajasthan	2002	63 schools	Enrolment	+ 23% increase 2001-2002, +36% for girls.
				Attendance	Increase in attendance reported by teachers.

Source	Study area	Study year	Sample size	Outcome	Findings
Mehta *et al*. (2013)	Ludhiana, Punjab.	2010-2011	20 schools, 200 students	Food intake and nutrition	MDM contribution to RDA intake: 21.8% energy, 39.3% protein and 30.3% fat. Contribution to actual intake: 28.2% energy, 51.7% protein, 27.5% protein. MDM a substitute.
Mittal and Srivastava (2006)	New Mal, West Bengal		150 children	Food intake and nutrition	MDM provided 25% of children's energy needs.
Paul and Mondal (2012)	Burdwan district in West Bengal	2010-2011	300 students	Performance	Significant difference in performance due to MDMS, based solely on parents' perceptions
Planning Commission (2010)	48 districts, 17 states	2007	480 schools, 4800 students, approximately 480 parents	Enrolment Attendance	Increase in enrolment attributed to MDM by majority of teachers in Andhra Pradesh and Madhya Pradesh only. Increase in attendance not due to MDM
Pratichi Trust (2005)	Birbhum district, West Bengal	2004	30 schools, 300 households	Attendance	+10% (Particularly SC, ST, Muslim and girls).
Samson et al. (2008)	Delhi	mid-2005	12 schools in 6 areas, 60 households	Enrolment Attendance	Drawing people to school especially poor boys. Increased attendance.
Si and Sharma (2008)	Odisha	2004	10 schools, 150 households	Enrolment Attendance Other	+3.8% in enrolment/annum since cooked meal compared to 1.5% when dry rations were served, fastest growth among ST students Households reported increased attendance. 5 schools reported decreases in dropouts. Support for working mothers
Singh (2008)	Andhra Pradesh	2002, 2006/2007	2944 students in two cohorts	Performance Nutrition	+ 0.6 standard deviations Peabody Picture Vocabulary Test Significant impact. Weight-for-age increase+.069 standard deviations for those not drought-affected and 0.169 standard deviations for those affected. MDM compensated for negative impacts of drought

Source	Study area	Study year	Sample size	Outcome	Findings
Singh *et al*. (2014)	Andhra Pradesh	2002 and 2006/2007	1950 children	Nutrition	MDM acts as a safety net for those affected by drought, compensating for negative impact on height and weight for age.
Pre- national scheme (selected)					
Agarwal *et al*. (1989)	Unknown	1984-1986	146 children	Education Nutrition	Marginal increase in verbal and performance IQ in intervention group. Arithmetic test 12 points higher Received 400-500 kcal and 10-12g protein for an average of 172 days per year. Height did not significantly differ from control group. Better weight gain.
CARE (1977) in Levinger (1986)	Karnataka	Not stated	4000 schools, 1784 with SFPs	Enrolment Attendance	Non-SFP school had higher enrolment (an average of eight more children), but no information on socio-economic characteristics +3% higher in SFP schools (7% in grade I). 6% in better functioning blocks
Gopaldas (2005)	3 districts, Gujarat	1994	30 schools, 3000 students	Nutrition	Those receiving micronutrients and deworming tablets were: 1.1 kg heavier and 1.1 cm taller; haemoglobin (Hb) levels were > 12 g/dL. intestinal parasite prevalence dropped from 71% to 39%; vitamin A deficiency were reduced from 67% to 34%.
Laxmaiah *et al*. (1999)	Karnataka	1992-1993	2,694 children, 60 schools	Enrolment Attendance	Increased enrolment ($p<0.05$) Increased attendance ($p<0.001$) and higher retention rate with reduced dropout rate ($p<0.001$)
Rajan and Jayakumar (1992)	Tamil Nadu		17 schools	Enrolment Attendance	Increase the enrolment of boys in government schools. Greatest impact on OBCs and Muslims Increased attendance and decreased drop-outs
Roy and Rath (1972) in Levinger (1986)	Orissa	Not stated	13 districts	Enrolment Attendance Food Consumption	Benefits enrolment, especially for grade 1 and in tribal areas. Schools with SFPs had lower dropouts. Acts as a supplement. No large impacts on diet.

B.9.4. Implementation

Table B.7: A tabulated bibliography of the literature on the implementation of the MDMS

Study	Study area	Study Year	Sample	Focus	Findings
Afridi (2005)	Chindwara district. Madhya Pradesh. 11 blocks, 41 villages	2004	615 households	Infrastructure	3.28% schools had kitchen, 6.5% eating utensils, 25.68% drinking water
				Quantity/ Quality	Insufficient quantity, 60% parents satisfied when only *daliya* (cracked wheat), 80% full meal.
Blue (2005)	Udaipur District, Rajasthan	Not stated	8 schools. 11 teachers, 63 parents and 67 students.	Quantity/ Quality	Smaller than prescribed. 52 of 67 children said they were full afterwards and 10 were still hungry. The quality varied.
				Delivery	Irregular delivery of wheat and funding.
				Human resources	Burden for teachers
Deodhar *et al*. (2010)	Ahmedabad, Gujarat	Not stated	"a few schools"	Quantity/ Quality	Food from two schools tested- protein and iodine content very low. Aflatoxin and high levels or uric acid present.
Drèze and Goyal (2003) (Centre for Equity Studies survey)	Chhattisgarh, Karnataka, Rajasthan. 81 villages	2003	81 schools, 324 households	Infrastructure	17% of schools constructed kitchens, shortage of utensils and plates. Firewood the main fuel source. Inadequate water arrangements.
				Quantity/ Quality	Contrast in quality of MDM across country. 86% of parents thought the quality of food was satisfactory. 10% of parents said their child had fallen ill in the previous year
				Logistics	Logistic delays and corruption and theft.
				Human resources	Disrupt teachers, especially when infrastructure is inadequate
				Discrimination	One case of discriminatory practice, in which *Dalit* children in one school in Rajsamand district, Rajasthan were forced to drink from their hands rather than shared cups. 4% of parents objected to different castes sharing the meal and only 1% reported their child had faced discrimination.

Study	Study area	Study Year	Sample	Focus	Findings
Jain and Shah (2005)	Madhya Pradesh	2004-2005	70 schools, 279 parents, 69 teachers, 70 cooks, students	Infrastructure	7% of schools had a proper kitchen. Availability of water a concern in a third of schools. Utensils inadequate.
				Quantity/ Quality	Shortfall protein content. 40% of cooks thought the quantity was insufficient. 'Sloppiness' in determining quantity to be cooked. 60% of parents thought the meal was good or very good. 10% found the meal bad or very bad. 96% thought the scheme should continue. Vegetables rare. Hygiene compromised by lack of infrastructure
				Human resources	Burden for teachers. Inadequate number of cooks.
				Discrimination	Caste discrimination in 10% of the 70 schools surveyed
Lok Adhikar network (2002) (in Khera, 2002)	Barmer District, Rajasthan	2002	63 schools	Logistics	Irregular or inadequate supplies.
				Discrimination	Found in two schools
PEEP (2013) (Reported in Drèze *et al.*, 2015)	10 states (BR, CG, HP, JK, MH, MP, OR, RJ, TN, UP). Two of the poorest districts, 8 villages.	2013	1926 households and 12 pensioners per village	Infrastructure	Most schools have adequate infrastructure.
				Quantity/ Quality	93% of parents thought the scheme should continue. 80% satisfied with the food
				Discrimination	8% of respondents reported their child has experienced caste-based discrimination in the scheme.
				Other	Percentage of people reporting the MDM was regular ranged from 65% in Madhya Pradesh to 100% in Tamil Nadu.
Pratichi Trust (2005)	Birbhum district, West Bengal	2004	30 schools, 300 households	Infrastructure	Inadequate infrastructure. Majority of schools had no kitchen shed.
				Quantity/ Quality	Some parents wanted greater quantity Concern for poor quality food expressed by parents and children. Monotonous menu.
Samson et al. (2008)	Delhi	mid-2005	12 schools in 6 areas, 60 households	Infrastructure	Inadequate water
				Quality/Quality	47.5% parents satisfied with the quantity and 53.3% with the quality.

Study	Study area	Study Year	Sample	Focus	Findings
Shankar and Natasha (2010)	Delhi and Ahmedabad	2010	12 schools	Infrastructure	Varied- some schools had a proper kitchen whilst others did not.
				Quality/Quality	Quantity sometimes inadequate. Opinions varied. Children liked the food in all schools. Problem with hygiene in both models. Children not washing hands, not all cooks wear gloves or hairnets.
				Human resources	Limited involvement of parents in the centralised model. Teachers reported disrupted class in Delhi (centralised model).
Shukla (2014)	Delhi	2014	14 schools and reports on MDM sample tests from 2011-2013.	Quality/Quality	In 2011-2012, 27 (5%) of 541 MDM samples prescribed to nutritional norms. 50 (17%) of 288 in 2012-2013. Delhi Municipal corporations: 14 (8.9%) of 158 in 2011-2012 and 13 (8%) of 161 in 2012-2013. 23 of 28 samples measured by the author (82%) were insufficient in weight. 5% of students said the food was tasty. The remaining thought the food was fine. Green/leafy vegetables not served.
				Monitoring	Insufficient monitoring. Cooking cost too low.
Sikligar (2011)	TN, GJ, HP, AP, UP, WB	2006-2008	240 schools	Infrastructure	Of 240 schools, there was kitchen shed in 168, drinking water in 239 and toilets in 166.
Swaminathan *et al*. (2004)	Tamil Nadu	Not stated	11 schools, 1 district	Quantity/ Quality	Quantity less than it should be. Cooks and teaches reduced the per child allocation. Poor quality and low quantity of vegetables used. Poor quality of grain provided.
				Infrastructure	Low quality kitchens. Inadequate washing facilities.
				Other	Inflated number of beneficiaries. Non-payment of fuelwood cost.
Thorat and Lee (2005)	Andhra Pradesh, Bihar, Rajasthan, Tamil Nadu and Uttar Pradesh		531 villages	Discrimination	24% of villages in Andhra Pradesh, 52% in Rajasthan and 36% Tamil Nadu, with discrimination taking the form of opposition to the employment of *Dalit* cooks, segregated seating, separate meals and inferior or insufficient food to *Dalit* students and occasionally the total exclusion of *Dalit* children.

Appendix C

Chapter 3

C.1 Sampled Locations

Table C.1: Employment at the sampled locations (GOI, 2011)

Location	Work	Main work	Marginal work 3-6	Marginal work 0-3	Cultivator	Agricultural Labourer	Household Industries	Other
1	3056	2569	468	19	2	241	204	2609
2	2886	2743	101	42	8	33	94	2751
3	1074	1001	71	2	8	5	65	996
4	1074	1001	71	2	8	5	65	996
5	1688	1488	194	6	534	55	65	1034
6	89	56	29	4	21	2	0	66
7	269	242	20	7	142	0	24	103
8	195	20	136	39	41	151	1	2
9	1345	1099	231	15	970	23	4	348
10	1345	1099	231	15	970	23	4	348
11	2306	2247	54	5	1	8	66	2231
12	1902	1289	606	7	207	359	51	1285
13	1902	1289	606	7	207	359	51	1285
14	190	14	149	27	2	186	2	0
15	930	609	198	123	912	7	3	8
16	985	623	244	118	682	188	0	115
17	2608	1137	1160	311	1712	839	7	50
18	640	171	462	7	251	325	3	61
19	1215	605	570	40	379	716	8	112
20	1686	1431	157	98	1401	181	6	98
21	175	9	166	0	169	4	0	2
22	838	804	34	0	480	347	0	11
23	625	582	37	6	6	13	32	574

Location	Work	Main work	Marginal work 3-6	Marginal work 0-3	Cultivator	Agricultural Labourer	Household Industries	Other
24	843	764	73	6	2	2	82	757
25	1218	989	223	6	494	313	75	336
26	689	39	441	209	359	98	1	231
27	1060	711	216	133	180	72	32	776
28	1060	711	216	133	180	72	32	776
29	433	275	135	23	120	19	101	193
30	1870	747	751	372	1178	254	12	426
31	1498	819	361	318	285	424	64	725
32	194	152	22	20	26	46	0	122
33	866	467	344	55	470	136	3	257
34	908	448	389	71	401	238	18	251
35	866	467	344	55	470	136	3	257
36	351	179	158	14	125	153	34	39
37	542	517	22	3	399	18	3	122
38	697	507	144	46	187	99	17	394
39	625	147	475	3	153	389	2	81
40	412	187	223	2	332	30	6	44
41	900	368	476	56	533	186	18	163
42	382	195	182	5	217	136	7	22
43	908	448	389	71	401	238	18	251

Table C.2: Population at the sampled locations (GOI, 2011)

Location	Block	Urban/rural	Nosh	Population	Males	Females	< 6 years	SC	ST	Literate	Males Literate	Females Literate
1	Girwa	Urban	1878	9112	4710	4402	1113	773	2077	6430	3700	2730
2	Girwa	Urban	1639	8625	5101	3524	744	477	852	7286	4529	2757
3	Girwa	Urban	716	3314	1734	1580	385	54	53	2679	1482	1197
4	Girwa	Urban	716	3314	1734	1580	385	54	53	2679	1482	1197
5	Girwa	Rural	829	4108	2187	1921	468	348	172	2733	1702	1031
6	Girwa	Rural	46	224	117	107	41	0	189	96	67	29
7	Girwa	Rural	113	552	268	284	70	214	0	290	185	105
8	Girwa	Rural	61	358	189	169	96	0	353	81	49	32
9	Girwa	Rural	791	3683	1884	1799	573	278	1857	1670	1094	576
10	Girwa	Rural	791	3683	1884	1799	573	278	1857	1670	1094	576
11	Girwa	Urban	1475	6752	3455	3297	666	699	875	5390	2907	2483
12	Kotra	Rural	1042	5333	2762	2571	1023	200	1431	2966	1781	1185
13	Kotra	Rural	1042	5333	2762	2571	1023	200	1431	2966	1781	1185
14	Kotra	Rural	62	405	220	185	101	0	403	80	65	15
15	Kotra	Rural	223	1252	650	602	319	5	1246	201	168	33
16	Kotra	Rural	310	1821	912	909	457	0	1819	199	149	50
17	Kotra	Rural	807	4565	2336	2229	1209	3	4463	659	485	174
18	Kotra	Rural	280	1478	759	719	297	7	1438	318	228	90
19	Kotra	Rural	417	2161	1116	1045	444	62	2051	560	405	155
20	Kotra	Rural	690	3855	1966	1889	995	20	3777	870	614	256
21	Kotra	Rural	80	485	235	250	128	0	485	106	80	26
22	Kotra	Rural	305	1750	858	892	435	0	1737	387	261	126

Location	Block	Urban/rural	No_HH	Population	Males	Females	< 6 years	SC	ST	Literate	Males Literate	Females Literate
23	Khamnor	Urban	302	1594	839	755	198	184	293	1121	659	462
24	Khamnor	Urban	497	2474	1273	1201	340	250	118	1815	973	842
25	Khamnor	Rural	406	2008	997	1011	326	42	543	993	637	356
26	Khamnor	Rural	264	1202	559	643	205	0	268	510	308	202
27	Khamnor	Rural	497	2559	1320	1239	407	448	393	1424	861	563
28	Khamnor	Rural	497	2559	1320	1239	407	448	393	1424	861	563
29	Khamnor	Rural	180	808	395	413	138	1	433	400	257	143
30	Khamnor	Rural	543	2649	1341	1308	411	188	93	1354	833	521
31	Khamnor	Rural	657	2873	1448	1425	449	124	891	1326	853	473
32	Khamnor	Rural	75	349	184	165	60	0	195	173	114	59
33	Kumbhalgarh	Rural	339	1561	775	786	210	139	12	921	576	345
34	Kumbhalgarh	Rural	552	2267	1088	1179	360	180	982	975	605	370
35	Kumbhalgarh	Rural	339	1561	775	786	210	139	12	921	576	345
36	Kumbhalgarh	Rural	155	677	310	367	132	43	91	262	160	102
37	Kumbhalgarh	Rural	271	1201	578	623	225	65	627	525	319	206
38	Kumbhalgarh	Rural	385	1757	810	947	256	134	259	971	545	426
39	Kumbhalgarh	Rural	280	1265	621	644	203	60	729	537	355	182
40	Kumbhalgarh	Rural	143	675	326	349	117	21	0	258	162	96
41	Kumbhalgarh	Rural	354	1617	794	823	282	208	99	693	445	248
42	Kumbhalgarh	Rural	258	1045	498	547	173	24	480	390	253	137
43	Kumbhalgarh	Rural	552	2267	1088	1179	360	180	982	975	605	370

C.2 List of schools

Table C.3 details the types of school sampled: Primary (grades I-V), upper primary (I-VIII), secondary are(I-X) and senior secondary (I-XII).

Table C.3: Sampled schools

School	Block	Type	School	Block	Type
1	Girwa	Primary	22	Kotra	Upper primary
2	Girwa	Upper primary	23	Khamnor	Upper primary
3	Girwa	Senior Secondary	24	Khamnor	Secondary
4	Girwa	Upper Primary	25	Khamnor	Primary
5	Girwa	Secondary	26	Khamnor	Upper primary
6	Girwa	Primary	27	Khamnor	Primary
7	Girwa	Secondary	28	Khamnor	Girls' Upper primary
8	Girwa	Primary	29	Khamnor	Primary (*Shiksha Karmi*)
9	Girwa	Senior Secondary	30	Khamnor	Upper primary
10	Girwa	Primary	31	Khamnor	Upper primary
11	Girwa	*Madarsa*	32	Khamnor	Primary
12	Kotra	Upper primary	33	Kumbhal.	Secondary
13	Kotra	Girls' Upper primary	34	Kumbhal	Senior Secondary
14	Kotra	Primary	35	Kumbhal	Primary
15	Kotra	Primary (*Shiksha Karmi*)	36	Kumbhal	Upper Primary
16	Kotra	Senior Secondary	37	Kumbhal	Primary
17	Kotra	Senior Secondary	38	Kumbhal	Primary (with upper primary UPS)
18	Kotra	Primary	39	Kumbhal	Primary
19	Kotra	Upper primary	40	Kumbhal	Primary (*Shiksha Karmi*)
20	Kotra	Primary	41	Kumbhal	Primary
21	Kotra	Primary	42	Kumbhal	Primary
22	Kotra	Upper primary	43	Kumbhal	Primary

C.3 School Survey

The following questions were asked at each school.

About the school

1. Type of School
2. School category
3. How many students are enrolled?
4. How many students dropout per year?
5. How many students are attending today?
6. How many classes are in the school?
7. How many classrooms are there?

The Midday Meal Scheme

8. How many children are eating the meal today?
9. Where is the food cooked?
10. How long has the food been cooked in this location?
11. How many cooks does the school employ
12. Why was/were the cook(s) selected?
13. How much is the cook paid per month?
14. How many days per week is the meal provided? (Max.6)
15. Has the MDM been served regularly for the last 12 months?
16. How many pupils eat the MDM?
17. Do any children go home for lunch instead
18. Do any additional children come to the school to have the MDM?
19. Is the meal provided during the summer vacation?
20. How many pupils eat the MDM in the summer vacation *(if it is provided)*?
21. Do all children sit together to eat?
22. Are all children served at the same time?
23. Are all the children served by the same person?
24. Are all children given the same amount of food?
25. How much grain is the school allocated per month?
26. How much of this grain is utilised
27. What is the budget per child per day?
28. Is the budget sufficient
29. Have there ever been any problems receiving the money?
30. What happens if the money is not sufficient/delayed?
31. In the past 12 months, how often has the meal been monitored?

Facilities

32. Does the school have a separate kitchen for cooking?
33. Does the school have a separate storage facility for the food?
34. Is clean drinking water available at the school?

Food

35. What food is provided each day? (record for each day of the week)
36. Is the same food served each week?
37. How often are green vegetables served?
38. How often is fruit served?
39. Where are the other ingredients bought?
40. Have children ever been ill after eating the food?

Participation and accountability

41. Who decides what food is cooked?
42. Is there a school management committee?
43. Who is on the school management committee?
44. How often does the committee meet?
45. Do parents ever ask about the MDM?
46. Do the parents ever complain about the MDM?
47. If parents have a complaint about the food, what can they do?
48. If teachers have complaints about the food, what can they do?

Impacts

49. Has the MDM affected any of the following: Enrolment, attendance, performance, children's health, children's families, relationship between students, employment of low caste women? (If yes, then how?)
50. What is your opinion of the Midday Meal Scheme?

C.4 Cook Survey

One cook in each school was asked the following questions.

1. Number of cooks at the school
2. Age
3. Caste
4. How many months/years have you been cooking the MDM at this school?
5. Who selected you for this job?
6. Why were you selected?
7. How many days per week do you cook the meal?
8. How much money are you paid per month?
9. Is the salary sufficient?
10. Is the money paid on time?
11. Who cooks the meal if you are ill?
12. How do you know what to cook each day?
13. Do you give all children the same amount?
14. Do the children all sit together to eat the MDM?
15. In your opinion, what is the main purpose of the MDM?
16. What is your opinion of the MDM?
17. Has the MDM affected any of the following: Enrolment, attendance, performance, children's health, children's families, relationship between students, employment of low caste women? (If yes, then how?)

C.5 Observation Checklist

The following details were recorded at each school:

1. Name of the school
2. School number
3. Location
4. Panchayat
5. Block
6. Date
7. Name of the observer
8. Provider of the MDM
9. Where is the food cooked?
10. At what time was food cooked?
11. At what time was the food served?
12. How long did it take to serve the meal?
13. Where is the food eaten?
14. What food is being served today?
15. How many students are eating the meal? (male, female)
16. How many cooks are present?
17. Are the following facilities available: kitchen shed, clean cooking area, gas cooker, space for food storage, clean drinking water and a toilet?
18. Is the menu displayed?
19. Was the food tasted before being served?
20. Are children involved in food preparation?
21. Are there enough plates?
22. Do children wash their hands before eating?
23. Are children involved in the serving of the meal?
24. Do all students eat the meal?
25. Do any children go home at lunchtime?
26. Do extra children come at lunchtime?
27. Do students eat all the food they are given?
28. Are second helpings available?
29. Do children eat a second helping?
30. Do all children sit together to eat?
31. Do all children eat at the same time?
32. Are all children served by the same person?

C.6 Household Survey

C.6.1. Household Survey 1

A. Respondent and household details[1]

1. Name
2. Age
3. Gender
4. Position in household
5. How many people are in your household? (adults, children)
6. How many members of the Household are employed?
7. What type of employment do they do?
8. What is their level of education?
9. What is the religion of the household?
10. Is the household vegetarian?
11. Caste
12. How many children above the children between 6-14 attend school
13. What type of school does your child/do your children attend?

B. Midday Meal Scheme

14. How many children in this household receive food at school?
15. How many days per week does your child eat the meal provided at school?
16. What food does your child get at school?
17. For your child, is the food at school a snack or meal?
18. Excluding the food at school, how many meals does your child eat per day?
19. How many snacks does your child eat per day?
20. Does your child also eat lunch at home?
21. Does your child take food from home to school with them?
22. Is the quantity of the food provided at school enough?
23. Is the food provided at school healthy?
24. Do you consider the quality of the meal to be: very good, good, fine, bad, very bad or don't know?
25. Has your child ever been ill after eating the MDM?
26. Has your child ever experienced any discrimination within the MDM? If yes, then please explain what happened.
27. Overall, are you very satisfied, satisfied, dissatisfied or very dissatisfied with the meal, or are you not sure? Please explain the reasons for your answer.
28. Has the MDM affected any of the following areas: Child's enrolment at school; Child's attendance at school; Child's performance at school; child's health; the other children in the household; other members of the household; the amount of food available in the household; the amount of money the household has; household food expenditure; household non-food expenditure; the equality of children; the employment of low caste women; relationship between different castes.
29. Has the MDM had any further outcomes that are not listed?
30. Do you participate in the school management committee?
31. If there were a problem with the food being provided, what would you do?

[1] Closed questions were standardised and coded, for example (0) No (1) Yes and (2) Sometimes. This is true of all surveys.

C. Questions for those eligible but not receiving the midday meal
<u>For those in an eligible school but not taking the meal.</u>

i. Has your child ever eaten the meal provided at school?
ii. Why does your child not eat the meal at school?

<u>For those in school, but one not eligible for the meal (private school)</u>

i. Has the absence of the MDM in your child's school affected your child or your household? *If yes,* In what way has your child been affected?
ii. Do you wish the MDM were provided in your child's school? Why?

<u>For those not in school</u>

i. Why does your child not attend school?
ii. If the school were to offer a free meal to children not in school, would your child take it?
iii. Please explain the reasons for your answer

D. Safety Nets

32. Do you get food through the Public distribution system?
33. What type of card do you have?
34. Have you used ICDS?
35. Does anyone in this household receive a pension from the Indira Gandhi National Old Age Pension Scheme
36. Has anyone in this household benefited from the National Maternity Benefit scheme?
37. Have this household ever benefited from the National Family Benefit Scheme?
38. Does anyone in this household have a MGNREGA job card?

E. Food

39. In the past 7 days, on how many days did you eat the following types of food? How frequently? Where did the food come from?
    a. Main staples: Wheat, maize
    b. Pulses
    c. Vegetables
    d. Fruit
    e. Meat, fish, eggs
    f. Milk: Milk, yoghurt and other dairy
    g. Sugar
    h. Oil
    i. Condiments: Spices, tea, coffee, salt

40. In the past for weeks did you experience...
    i. Did you worry that your household would not have enough food?
    ii. were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?
    iii. Did you have to eat a limited variety of foods due to a lack of resources?
    iv. Did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?
    v. Did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?
    vi. Did you or any household member have to eat fewer meals in a day because there was not enough food?
    vii. Was there ever no food to eat of any kind in your household because of lack of resources to get food?

viii. Did you or any household member go to sleep at night hungry because there was not enough food?
ix. Did you or any household member go a whole day and night without eating anything because there was not enough food?

C.6.2. Household Survey 2

A. Respondent and Household

1. Name
2. Age
3. Gender
4. What is your relationship to the head of the household?
5. What is the religion of the household?
6. Is the household vegetarian?
7. Caste
8. How many people live in this household? (adults, children)
9. Adult Household Members. List the: name, age and occupation of all adult members
10. Child members. List the: age, gender, whether they attend the case study school, how many days they attend school and on how many days they eat the MDM.

B. Midday Meal Scheme

11. Is the quantity of food provided in the MDM scheme enough?
12. Is the food provided healthy?
13. Do you consider the quality of the meal to be: very good, good, fine, bad, very bad or don't know?
14. Has your child ever been ill after eating the MDM?
15. Has your child ever experienced any discrimination within the MDM?
16. Because of the MDM:
    a. Did any of your children start going to school?
    b. Do your children go to school more often?
    c. Has your child performed better at school?
    d. Has your child's health improved?
    e. Does your child eat less at home?
    f. Is there more food at home?
    g. Do the rest of the family eat more at home?
    h. Is there more money at home?
    i. Is less money spent on food?
    j. Do you have more time to work?
    k. Is there a better relationship between the children

C. Food Consumption

17. Food consumption score
18. 24 hour food recall: food items, quantity, source, cooking method
19. HFIAS
20. Safety nets- same questions as household survey one

D) Standard of Living

21. Which of the following applies to your house?
    - House type: pucca, semi-pucca, kaccha
    - Toilet: Own flush toilet, public/shared flush, shared/public pit, no facility
    - Lighting: electricity, kerosene/gas/oil, other

- Main fuel for cooking: Electricity/ liquid petroleum gas/ biogas, coal/ charcoal/ kerosene, other
- drinking water: private pipe/handpump/well, Public tap/handpump/well, other
- Separate room for cooking
- Ownership of house
- Ownership of agricultural land: (1) 5> acres (2) 2.0-4.9 acres (3) <2 acres or acreage not known (4) No agricultural land
- Ownership of irrigated land
- Ownership of livestock
- Do you own any of the following: car/tractor, Moped/motorcycle/scooter, telephone, Refrigerator, colour television, bicycle, electric fan, radio/transistor, black and white television, water pump, cart, mattress, pressure cooker, chair, cot/bed, table, clock/watch

22. What is the monthly income of this household
23. In the past seven days, how much money did you spend on the following: Cereals and cereal substitute, Pulses and their products, Milk and their products, oil, Egg, fish and meat, vegetables, fruit, sugar, salt/spices, food/beverages consumed outside of the home, pan/tobacco/intoxicants.
24. How much money did this household spend in the last 30 days on the following: fuel/light, rent, taxes, medical costs (non-institutional), conveyance, payments to others for a service, Miscellaneous goods including entertainment
25. How much money did this household spend in the last 365 days on the following: clothing/footwear/bedding, education, medical care (institutional), durable goods.

C.6.3 Household Survey 3

A. Respondent

1. Name
2. Gender

B. The Midday meal scheme

1. Is the food provided at school tasty?
2. Is the food provided at school like home-cooked food? Why?
3. Does your child take a plate/empty tiffin to school?
4. Does your child sit with members of the same caste at school? Why?
5. Does your child sit with members of the same caste to eat the MDM? Why?
6. How many times a day do you cook at home?
7. How many times a day do you eat at home?
8. On a Sunday, overall does your child eat: (1) More than they do at school (2) Less than they do at school (3) The same amount (4) Don't know
9. Is the MDM served here during the summer vacation?
10. If no, do you wish it was being served?
11. In the summer, does your child eat: 1) More than they do during school time(2) Less than they do during school time (3) The same
12. In the summer vacation, does the amount of food in the household change?
13. Does the lack of MDM during the summer have any impact on your child or your household? Please explain
14. Would having the MDM in the summer make any difference?
15. If eggs were served at school, would your child eat them?

C. Food consumption

16. FCS
17. Food consumption recall
18. HFIAS

C.7 Measuring Food (In)security

As Jones *et al*. (2013) wrote: 'the diversity of food security measurement tools currently available provides a rather dizzying array of options' (484). Jones *et al*. group these as follows:

1. National-level estimates of food security
    a. Prevalence of undernourishment
    b. Global Hunger Index
    c. Global Food Security Index

2. Global monitoring and early warning systems
    a. Famine Early Warning Systems Network
    b. Vulnerability analysis and mapping methodology

3. Household food access
    a. Household consumption and expenditure survey
    b. The dietary diversity proxy.
    c. Food Consumption Score (FCS)
    d. Household Dietary Diversity Score.

4. Measures based on participatory adaptation
    a. Coping Strategies Index
    b. Household economy approach

5. Direct, experience-based measures
    a. United States Household Food Security Survey Module (HFSSM)
    b. Household Food Insecurity Access Scale (HFIAS)
    c. Household hunger scale.
    d. Latin American and Caribbean Household Food Security Scale

6. Food utilisation
    a. Anthropometry

The focus of the primary research is household-level food insecurity, points 3-5 in the above. Whilst a focus on individual-level food insecurity using anthropometric measurements would have been useful and is certainly needed to assess child malnutrition and the impact of the MDMS, it was beyond the scope of this PhD. Table C.4 reviews the measures of household food security. Due to the focus of this study on the Indian context, the US HFSSM and the Latin American and Caribbean Household Food Security Scale are not included in the review.

Table C.4: Review of the measures of household food security (adapted from Jones *et al.*, 2013)

Method	Description	Purpose	Domain	Data Source	Strengths	Limitations
Household consumption and expenditure survey	Consumption and expenditure	- Data on food acquired	Access Food quantity and quality	Consumption and expenditure surveys	- Less time-consuming and less expensive than assessments of dietary intakes	- Over and under – estimating means it is not sufficiently accurate for some assessments
The dietary diversity proxy	Food group consumption	- Quality	Food Quality	Household surveys	- Easy to collect - Associated with measures of household food security	- The kinds of food available vary widely across contexts
FCS	Frequency of food intake of the main food groups, multiplied by weight of give a score	- Prevalence of food insecurity - Monitor changes in food security - Determine food needs	Food Quality	Household surveys, food security assessments	- Requires minimal data collection - Information on both frequency and dietary diversity	- Cut-offs may underestimate food insecurity
Household Dietary Diversity Score	Food consumption of food groups within the past 24 hours. Give a score of between 0 and 12.	- Assess prevalence of food insecurity. - Examine changes over time.	Food Quality	Household surveys	- Requires minimal data collection - Contains more food groups than the FCS - Positively associated with other measures including coping strategies and calories	- No standard cut-offs
Coping Strategies Index	Questions on how households cope with food shortage, based on common coping strategies. Produces a score.	- Target food aid - Identify vulnerable households - Permit comparison	Economic Access Food quantity and quality	Focus Groups	- Has been found to positively correlate with expenditure	- The shorter version may not provide sufficiently comprehensive data - Score is not particularly useful by itself

Method	Description	Purpose	Domain	Data Source	- Strengths	- Limitations
Household economy approach	Broad assessment of livelihoods including groups of livelihoods, wealth and assets.	-Assess poverty and livelihood vulnerabilities	Physical availability Physical and economic Access	Semi-structured interviews, focus groups	- Provides a contextual understanding - May provide more in-depth insights than simpler measures	- Does not generate a quantifiable outcome - Comparison between locations is difficult
HFIAS	Questions on experiences of food insecurity. Generates a score and categories	- Assess food security status within regions or households. - Evaluate the impact of interventions	Anxiety Preferences Economic Access Quantity	Household Surveys	- Has been found to positively correlate with other measures including income, assets and dietary diversity.	- Questions may be interpreted differently and therefore can vary across contexts - Relies on subjective assessments and therefore can be affected by changes in views
Household hunger scale	Sum of responses to three questions on hunger with three levels of frequency. Generates a score between 0 and 6.	- Assess hunger within and across contexts. - Target Interventions - Evaluate the impact of interventions	Economic Access Food Quantity	Household Surveys	- Focus on extreme conditions which translate more easily across contexts	- The focus is on hunger rather than food security

In addition to the above, one can also assess diets using dietary energy intake, typically determined by recording and weighing all food consumed. However, this method is technical and time-consuming. Moreover, as reviewed by Wiesmann *et al*. (2006), several studies have found that proxy indicators such as dietary diversity correlate with dietary energy intake (Ogle, 2001; Torheim *et al*., 2004) and dietary diversity and food frequency positively correlate with indicators of food quality (Hatløy *et al*., 1998; Torheim *et al*, 2004). Therefore, measures of dietary diversity can be used instead of measures to assess dietary energy intake.

Despite the increasing recognition of the need to measure the multiple dimensions of food security beyond dietary diversity, these measures fail to adequately measure the sufficiency, acceptability and stability of food (Coates, 2013; Jones *et al*., 2013; Webb *et al*., 2006). In response, Coates (2013) proposed a suite of indicators, including measurements of calories, dietary diversity and food access alongside unspecified scales of cultural acceptability and safety. The extent to which scores and indexes alone can measure food security is, however, questionable. Food, food security and particularly adequacy and acceptability, are personal and emotional and have been considered better studied through qualitative measures that account for subjectivity (Maxwell, 1996; Sridhar, 2008). In this study, I therefore used multiple methods to assess and explore food (in)security.

The goal here was to examine the quality of food consumption and food security status. As the sole purpose of the research was not to assess food security, the measure of food security needed to be incorporated into household surveys. During the first stage of the research, where breadth was the aim, 24-hour food consumption recall was not feasible. Household consumption and expenditure surveys were tested in the pilot study, but were found to be too time-consuming and not welcomed by participants. Based on the strengths and weakness of the measures outlined in Table C.4, the most suitable methods and the ones used in this study were the food consumption score and the HFIAS. The FCS method was selected to provide insight into both food consumption and dietary diversity and the HFIAS was used to assess experiences of food security. In the second and third stage of the research, 24-hour food consumption recall was used. Recognising the limits of scales (Coates, 2013), food security was also examined in interviews and focus groups. I detail the implementation of the HFIAS and 24-hour food consumption recall in Chapter 3. Due to the complexity of using the FCS in South Asia, there is need for further discussion of the measure and how it was used here.

Food Consumption Score

As mentioned in Chapter 3, the use of the FCS in the South Asian context rather than in sub-Saharan Africa is complicated by the greater dietary diversity in South Asia. For this study, milk consumption was particularly problematic. Milk should be given a weight of four unless used in small quantities such as a teaspoon in tea in which case it should be treated as a condiment with a weight of zero

(WFP, 2008). In the example given by the WFP (2008) of the use of the method in Laos, on average milk was only consumed after a score of 55 was reached and was consumed six times per week once a score of 84 was reached. However, milk featured frequently in the diets of the respondents in this study. In HS1, milk was consumed daily by 209 participants (49.6%) and had been consumed during the previous seven days by 303 participants (72%). A weighting of four therefore radically changes the FCS, adding 28 for almost half of the participants who consumed milk daily. Using the standard cut-offs, the daily consumption of milk and no other food group would indicate a borderline adequate/inadequate diet. Moreover, the overall weighting of four ignores the different extent of consumption. Milk is expensive and for most households that buy milk, it is consumed in tea only. The quantity of milk consumed in tea is more than a teaspoon and should not be discounted as a condiment. However, the quantity of milk consumed is far less than for those who consume milk by the glass, possible for those who are wealthy or have their own source of production. To address this issue, a small amount of consumption (in tea only) was given a weight of two and a full consumption (by the glass) was given a weight of four. The decision was based on whether the household bought or produced their own milk which was recorded as part of the FCS, which was cross-referenced with the food consumption recall.

As shown in Table C.5, how milk is weighted significantly changes how diets are classified. For comparison, the HFIAS results indicated that 46.3% of the sample were food secure, 14.1% were mildly insecure, 16.5% were moderately food insecure and 22.2% were severely food insecure. Thus, to calculate the scores used to correlate the measure with HFIAS scores, the weighting of two and four are used.

Table C.5: The impact of the weight given to milk for FCS categories, household survey one

Cut-offs		Weight 4		Weight 2, 4		Weight 0	
		Freq.	**%**	**Freq.**	**%**	**Freq.**	**%**
Standard	Poor	12	2.8	12	2.8	13	3.0
	Borderline	107	24.9	123	28.7	290	67.6
	Acceptable	310	72.3	294	68.5	126	29.4
Modified	Poor	76	17.7	80	18.6	125	29.1
	Borderline	65	15.2	95	22.1	263	61.3
	Acceptable	288	67.1	254	59.2	41	9.6

Using the standard and modified cut-offs is also problematic in the Indian context. Not only are the overall scores higher due to milk consumption, the cut-offs are also influenced by sugar and oil consumption. In HS1, 90.3% of households consumed sugar daily and 94% consumed sugar six or seven days per week. In HS2, 84% consumed oil daily and 86% consumed six or seven times per

week. Whilst the clear majority consume these items daily, daily consumption was not ubiquitous among the households and therefore the modified cut-offs (see Section 3.3.5) could not be used.

Furthermore, the use of the FCS in India is complicated by the prevalence of vegetarianism. Including the food group of meat/fish/eggs and giving it a weight of four can radically alter the score. However, given the nutritional properties of these food groups, the inclusion of this food group is still important for indicating food consumption. I have therefore did not exclude the category from the method or analysis. However, I would caution against comparing any FCS results between states/UTs due to the differential consumption of these products. The absence of meat from the diets of the majority of respondents means that greater emphasis should be placed on the frequency at which other sources of protein, especially pulses, were consumed.

To provide insight into the overall pattern of consumption, Figure C.1 displays the average consumption pattern for each score from the first household survey. The data has been smoothed and condiments have been excluded due to the frequency that they were consumed and their insignificance to nutritional intake. The pattern at the high-end of FCS score dips as a consequence of averaging frequency across a smaller sample. As shown, the consumption of staples, sugar and oil is relatively stable across the sample, whereas pulse, vegetable, fruit and milk consumption varies considerably, with the frequency of consumption increasing as the score increases.

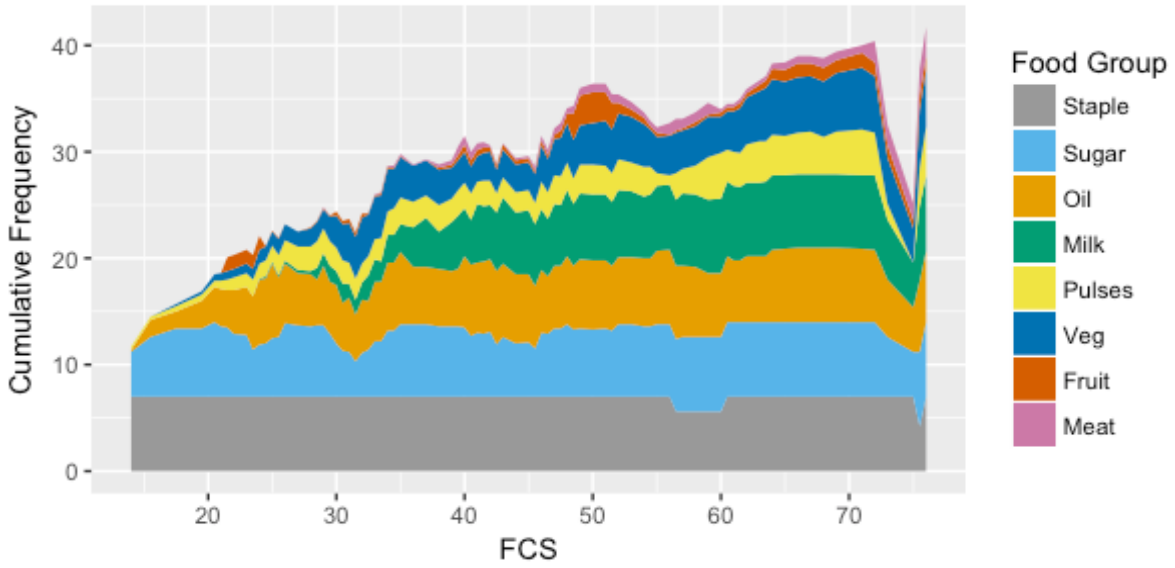


Figure C.1: Stacked FCS results, household survey one

These limitations introduce uncertainty in using the score-based categories of consumption. To adequately determine the cut-offs appropriate for North Indian dietary patterns, one would need to compare FCS results with a nutritional analysis of dietary intake; a substantial piece of research by

itself. Therefore, here I have not used the categories of consumption typically used in the FCS method. Without these scores, the measure can still assess food consumption.

Comparing Methods

As reported in Section 3.3.5, the FCS score and the HFIAS score results were significantly correlated. To compare methods further, the results from the cluster analysis were compared to the results from the HFIAS categories. As detailed in Section 5.2.2, in the FCS data from HS1, cluster one had the least diverse consumption, followed by cluster four, three and cluster two which had the most diverse consumption. One would not expect there to be perfect overlap between the results from the HFIAS and the cluster analysis as they were measuring different things. Indeed the results in Table C.6 indicate that the overlap was not perfect for the intermediate clusters. However, there is an overall trend; those that had the least diverse diets were the most food insecure. As shown in Table C.6, only 8.3% of cluster one were food secure compared to 55.1% of cluster two.

Table C.6: HFIAS category and cluster results, household survey one

HFIAS category	**Cluster 1**		**Cluster 2**		**Cluster 3**		**Cluster 4**	
	Freq.	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
Secure	3	8.3	54	55.1	43	37.4	98	56.3
Mildly Insecure	7	19.4	18	18.4	15	13.0	20	11.5
Moderately Insecure	4	11.1	21	21.4	17	14.8	28	16.1
Severely Insecure	22	61.1	5	5.1	40	34.8	28	16.1

A chi-square test of independence also found a significant relationship between cluster and HFIAS category, χ^2 (9)=71.576, p=<.001. The results from pairwise comparisons are shown in Table C.7. These support the findings shown in Table C.6; at the extremes, the clusters and HFIAS categories overlap.

Table C.7: Pairwise comparisons HFIAS category and clusters, household survey one

Pairwise comparisons	**P value**
Secure/Mildly Insecure	p=0.0052
Secure/Severely Insecure	p=<0.001***
Secure/moderately insecure	p=0.227
Mildly/moderately insecure	p=0.639
Mildly/severely insecure	p=<0.001***
Moderately/severely insecure	p=<0.001***

The cluster analysis of the FCS results from HS2 showed that those in cluster one had the least diverse diets and those in cluster two had the most diverse (Section 3.3.5). The results presented in Table C.8

show clear overlap between dietary diversity and HFIAS category; those with the least diverse diets had higher levels of food insecurity than those with more diverse diets.

Table C.8: Cluster analysis and HFAIS category, household survey two

HFIAS Category	Cluster 1		Cluster 2		Cluster 3	
	Freq.	%	Freq.	%	Freq.	%
Secure	1	2.8	11	34.4	5	5.6
Mildly insecure	2	5.6	6	18.8	20	22.5
Moderately Insecure	4	11.1	7	21.9	21	23.6
Severely Insecure	29	80.6	8	25.0	43	48.3

A chi-square test also showed non-independence between clusters and HFIAS categories, $\chi^2(6)=37.45$, p=<0.001. Pairwise comparisons are shown in Table C.9. The distribution of clusters was significant for all HFIAS categories, except for mildly and moderately insecure.

C.9: Pairwise comparisons HFIAS categories and clusters, household survey two

Pairwise comparisons	P value
Secure/Mildly Insecure	p=0.01**
Secure/Severely Insecure	p=<0.001***
Secure/moderately insecure	p=0.02*
Mildly/moderately insecure	p=0.852
Mildly/severely insecure	p=0.014*
Moderately/severely insecure	p=0.027*

Therefore, in the FCS data from both HS1 and HS2, the clusters of food consumption are significantly related to HFIAS categories; those with the least diverse diets are most likely to be food insecure and those with more diverse diets are less food insecure/food secure. The similarities between the results indicates the validity of the measures.

C.8 Student Survey

Class:
Age:

1. How many days per week do you go to school?
2. Do you eat breakfast before coming to school? Yes. No. Sometimes
3. Do you eat the food at school? Yes. No. Sometimes
4. Do you bring tiffin to school from home? Yes. No. Sometimes
5. How many times per day do you eat?
6. Do you get enough food at school? Yes. No. Sometimes
7. Is the food at school... very good, good, fine, bad or very bad?
8. What is your favourite meal that is served at school?
9. Do you eat less food on a Sunday? Yes. No.
10. Do you eat less food in the summer holiday? Yes. No.

C.9. Essay

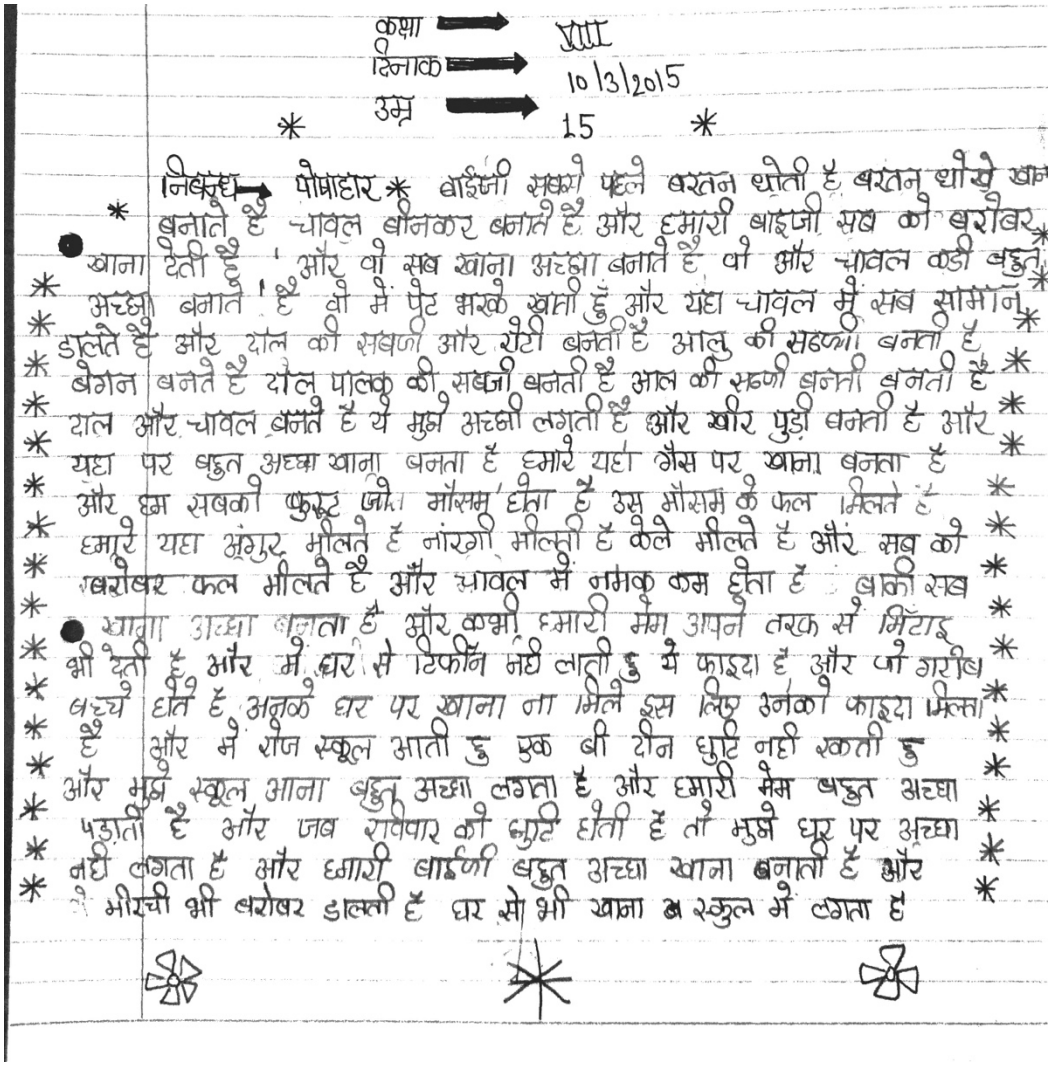


Figure C.2: Example of a student's essay from CS1

Appendix D

Chapter 4

D.1: Recommended Daily Allowances and the MDMS

The theoretical contribution of the MDM to diets can be calculated by comparing recommended dietary allowances (RDA) and the quantities that should be provided in the MDMS. The results are shown in Table D.1. Children in the age group 10-12 years could be in lower primary (LP) or upper primary (UP) and thus the contribution to both are presented. As shown, in theory, the MDM contributes between 20.5%-35% of a child's daily calories and between 29.7-59.7% of protein. The fulfilment of one third of calories and one half of protein would only occur for children between 4-6 years. The contribution would be lower for children with a high activity level as their RDAs would be higher.

Table D.1: RDA for Indian children (NIN, 2011) and contribution of MDMS

Group	Age (years)	Energy RDA (kcal)	Contribution of MDM to calories (%)	Protein (g)	Contribution of MDM to protein (%)
Children	4-6	1350	33.3	20.1	59.7
	7-9	1690	26.6	29.5	40.7
Boys	10-12 (LP)	2190	20.5	39.9	30.1
	10-12 (UP)	2190	32.0	39.9	50.1
Girls	10-12 (LP)	2010	22.4	40.4	29.7
	10-12 (UP)	2010	35.0	40.4	49.5
Boys	13-15	2750	27.3	54.3	36.8
Girls	13-15	2330	30.0	51.9	38.5

It should be noted that the quality of protein varies due to the composition of amino acids; eggs and then human milk are the highest quality proteins and milk, meat and fish are good quality proteins (Gopalan *et al*., 2014). The protein value of cereals can be enhanced by the intake of vegetables, particularly leafy vegetables (NIN, 2011). The quantity of protein required therefore varies depending

on the quality of the protein consumed. Whilst this should be remembered, here only the protein content as stated in Gopalan *et al*. (2014) and by the GOI are considered.

The specified quantity of each food group needed for a balanced diet (NIN, 2011) and the potential contribution of the MDM are shown below in Table D.2. The MDM contributes the most to cereal and pulse intake and less to vegetable and fat intake. Precise contributions vary by age and, in children aged 10 and above, gender.

Table D.2: RDA of food groups (NIN, 2011) and MDMS contribution

Age Group (Years)		**Cereals**		**Pulses**		**Vegetables**		**Fat and Oil**	
		RDA (g)	**MDM (%)**	**RDA (g)**	**MDM (%)**	**RDA (g)**	**MDM (%)**	**RDA (g)**	**MDM (%)**
4-6		120	83.3	30	66.7	150	33.3	25	20
7-9		180	55.6	60	33.3	200	25	30	16.7
10-12	Boys (LP)	300	33.3	60	33.3	300	16.7	35	14.3
	Girls (LP)	240	50	60	50	300	25	35	21.4
	Boys (UP)	300	41.7	60	33.3	300	16.7	35	14.3
	Girls (UP)	240	62.5	60	50	300	25	35	21.4
13-15	Boys	420	35.7	75	40	300	25	45	16.7
	Girls	330	45.5	60	50	300	25	40	18.8

Based on the menu in Rajasthan (Section 4.4.2), lower primary students should receive 600g of grain, 80g of *dal*, 200g of vegetables and 30 of oil and fat per week under the decentralised model. The quantities are the same under the centralised model, with the exception of *dal* which would be 60g. At the upper primary level, students would receive 900g of grain, 120g of *dal*, 300g of vegetables and 45g of oil and fat under the decentralised model. The quantities would be the same for the centralised menu, although the quantity of *dal* would be 90g. The proportion of the RDA of energy, protein and calories met by the MDM across the six days when the meal is served is shown in Table D.3

Table D.3: Percentage of RDA met by the MDM across the six days when the MDM is served

Food	Age group (years)							
	4-6	7-9	10-12				13-15	
			Boys (LP)	Boys (UP)	Girls (LP)	Girls (UP)	Boys	Girls
Energy (decent.)	33.4	26.7	20.6	30.4	22.4	33.1	24.2	28.6
Energy (cent)	32.6	26.1	20.1	29.7	21.9	32.3	23.6	27.9
Protein (decent.)	51.8	35.3	26.1	49.5	25.8	48.8	36.3	38.0
Protein (cent.)	59.5	40.6	30.0	45.1	29.6	44.5	33.1	34.6
Cereal	83.3	55.6	33.3	50.0	41.7	62.5	35.7	45.5
Pulse (Decent.)	44.4	22.2	22.2	33.3	22.2	33.3	26.7	33.3
Pulse (Cent.)	33.3	16.7	16.7	25.0	16.7	25.0	13.3	16.7
Vegetable	22.2	16.7	11.1	16.7	11.1	16.7	16.7	16.7
Fat	13.3	11.1	9.5	21.4	9.5	21.4	16.7	18.8
Fruit	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7

Tables D.4 and D.5 show the proportion of the RDA of calories and protein that would be fulfilled by the MDM in Rajasthan, according to the recalculated values presented in Table 4.4. The proportion of calories ranges from 18.9-37.3% and protein from 23-81.%.

Table D.4: Percentage of RDA of calories met by the MDM in Rajasthan

	Menu	Age group							
		4 - 6	**7-9**	**Boys 10-12 LP**	**Boys 10-12 UP**	**Girls 10-12 LP**	**Girls 10-12 UP**	**Boys 13-15**	**Girls 13-15**
Decentralised	*Roti*, vegetables	32.3	25.8	19.9	29.2	21.7	31.8	23.2	27.4
	Rice, *dal* with vegetables	37.3	29.8	23.0	33.8	25.0	36.8	26.9	31.8
	Roti, *dal*	30.6	24.4	18.9	28.3	20.5	30.8	22.5	26.6
	Khichdi (*dal*, rice with vegetables)	37.3	29.8	23.0	33.8	25.0	36.8	26.9	31.7
Centralised	*Roti*, vegetables and rice	32.3	25.8	19.9	29.2	21.7	31.8	23.2	27.4
	Roti, dal, sweet rice	30.6	24.4	18.9	28.3	20.5	30.8	22.5	26.6
	Roti, dal	30.6	24.4	18.9	28.3	20.5	30.8	22.5	26.6
	Khichdi	37.3	29.8	23.0	33.8	25.0	36.8	26.9	31.8
	Roti and vegetables	32.3	25.8	19.9	29.2	21.7	31.8	23.2	27.4

Table D.5: Percentage of RDA of protein met by the MDM in Rajasthan

	Menu	Age group							
		4 - 6	**7-9**	**Boys 10-12 LP**	**Boys 10-12 UP**	**Girls 10-12 LP**	**Girls 10-12 UP**	**Boys 13-15**	**Girls 13-15**
Decentralised	*Roti*, vegetables	58.7	40	29.6	55.5	29.2	43.8	32.6	34.1
	Rice, *dal* with vegetables	56.2	38.3	28.3	53.3	28.0	42.1	31.3	32.8
	Roti, dal	81.1	55.3	40.9	76.8	40.3	60.6	45.1	47.2
	Khichdi (*dal*, rice with vegetables)	56.2	38.3	28.3	53.3	28.0	42.1	31.3	32.8
Centralised	*Roti*, vegetables and rice	46.3	31.5	23.3	43.9	23.0	34.7	25.8	27.0
	Roti, dal, sweet rice	68.7	46.8	34.6	64.9	34.2	51.2	38.1	39.9
	Roti, dal	81.1	55.3	40.9	76.8	40.3	60.6	45.1	47.2
	Khichdi	56.2	38.3	28.3	53.3	28.0	42.1	31.3	32.8
	Roti and vegetables	58.7	40	29.6	55.5	29.2	43.8	32.6	34.1

The RDA of micronutrients is shown in Table D.6. Based on the discussion of micronutrients in Gopalan *et al*. (2014), Vitamin B_1 (Thiamine) is not considered as Indian diets are typically lacking in this only when highly polished rice is consumed, which is not the case in the study area. Vitamin B_6 (Pyridoxine) is not considered as the content of this in Indian food has not been systematically studied. Vitamin B12 is not considered as deficiencies are not widespread in India. Phosphorus is not considered as sufficient amounts can be obtained from a poor cereal-based diet and thus deficiencies are rare. Zinc is not considered as the outcomes of zinc deficiency are unclear.

Table D.6: RDA of certain nutrients (NIN, 2011).

Nutrient	**Age Group (Years)**					
	4-6	**7-9**	**10-12**		**13-15**	
			Boys	**Girls**	**Boys**	**Girls**
Calcium (mg)	600	800	800	800	800	800
Iron (mg)	13	16	21	27	32	27
/B-Carotene (μg)	3200	4800	4800	4800	4800	4800
Riboflavin (mg)	0.8	1.0	1.3	1.2	1.6	1.4
Niacin (mg)	11	13	15	13	16	14
Vitamin C (mg)	40	40	40	40	40	40
Dietary folate (mg)	100	120	140	140	150	150
Magnesium (mg)	70	100	120	160	165	210

The micronutrient content of the MDM would vary significantly depending on the inclusion of fruit and vegetables. Table D.7 shows the micronutrient value of *roti*, rice, *dal* and common vegetables and fruit. The figures firstly indicate the importance of vegetable and fruit consumption for micronutrient intake. Second, the figures show the significance of the choice of vegetable. For example, green leafy vegetables such as spinach and drumstick leaves are extremely high in vitamin A.

Table D.7: Micronutrient value of foods per 100g of edible portion (Data source: Gopalan *et al.*, 2014)

Nutrient	***Roti* (wheat)**	**Rice**	***Dal***	**Spinach**	**Aubergine**	**Cauliflower**	**Potato**	**Tomato**	**Drumstick Leaves**	**Banana**	**Mango**
Calcium (mg)	48	10	69	73	18	33	10	48	440	17	14
Iron (mg)	4.8	0.7	7.58	1.14	0.34	1.23	0.48	0.64		0.36	1.3
B-Carotene (μg)	29	0	270	5580	74	30	24	351	6780	78	2743
Riboflavin (mg)	0.17	0.06	0.2	0.26	0.11	0.1	0.01	0.06	0.05	0.08	0.09
Niacin (mg)	4.3	1.9	2.6	0.5	0.9	1	1.2	0.4	0.8	0.5	0.9
Vitamin C (mg)	35.8	0	0	28	12	56	17	27	220	7	16
Dietary folate (mg) free	12.1	4.1	14.5	51	5	-	3	14	-	0	-
Magnesium (mg)	138	61	74	64	15	18	30	-	42	41	270

Thus, the micronutrient content of the MDM varies significantly depending on the vegetable and fruit included. Here, by way of indication of the potential contribution, Table D.8 shows the proportionate contribution of the MDM if *roti* and cauliflower and tomato were served (half a serving of each). The contribution if shown for the lower primary level. The meal supplied a small proportion of calcium, carotene and folic acid.

Table D.8: Contribution MDM to nutrient intake at the lower primary norms (%)

Nutrient	**Age Group (years)**			
	4 to 6	**7 to 9**	**Boys 10-12**	**Girls10-12**
Calcium (mg)	11.4	8.5	8.5	8.5
Iron (mg)	40.5	32.9	25.1	19.5
Vitamin A(B-Carotene) (μg)	3.9	2.6	2.6	2.6
Riboflavin (mg)	26.3	21.0	16.2	17.5
Niacin (mg)	42.3	35.8	31.0	35.8
Vitamin C (mg)	141.4	141.4	141.4	141.4
Dietary folate (mg) free	15.6	13.0	11.1	11.1
Magnesium (mg)	203.6	142.5	118.8	89.1

The potential contribution of the MDMS to RDAs is therefore variable, varying by gender, age, food group and micronutrients. Although the scheme can make a sizable contribution to cereal and pulse intake, the contribution to the intake of vegetables and fat/oil is far lower. The contribution to certain micronutrients is also low and heavily depends on the choice of vegetable and the inclusion of fruit. Based on the above, the RDAs would be fulfilled if students were consuming at least two other meals at home that were high in protein, fat and vegetables.

D.2 MDM Delivery Models

Table D.9: MDM delivery models across India by number of schools 2015-2016
(Data source: AWPBs for 2016-2017).

State/UT	PRI/GP/ Local Body	SMC/ VEC/WEC	SHG	NGO	Trust	Other	Total
Andhra Pradesh	0	0	44425	1018	151	0	45594
Arunachal Pradesh	0	3424	4	0	0	0	3428
Assam	256	57097	0	591	0	0	57944
Bihar	668	67195	0	2751	0	0	70614
Chhattisgarh	52	741	43290	671	0	220	44974
Goa	0	0	1496	0	0	6	1502
Gujarat	33025	0	0	3264	0	0	36289
Haryana	1344	2545	7021	4	22	0	10936
Himachal Pradesh	0	15386	0	0	0	0	15386
Jammu and Kashmir	0	23136	0	0	0	0	23136
Jharkhand	0	40584	0	388	0	0	40972
Karnataka	0	49997	0	5840	0	0	55837
Kerala	0	0	0	0	0	12358	12358
Madhya Pradesh	415	4751	78277	2171	0	669	86283
Maharashtra	965	75865	6973	1441	7	1409	86660
Manipur	0	3369	0	0	0	0	3369
Meghalaya	0	11849	0	0	0	0	11849
Mizoram	0	2581	0	0	0	0	2581
Nagaland	0	2060	0	0	0	0	2060
Orissa	0	42264	17912	297	2311	0	62784
Punjab	0	20276	0	0	0	0	20276
Rajasthan	0	65769	1847	3728	0	0	71344
Sikkim	0	388	269	65	0	14*	736
Tamil Nadu	0	0	0	0	0	43047	43047
Telangana	0	3076	24424	961	74	449*	28984
Tripura	1	0	113	0	0	6442	6556
Uttarakhand	0	0	0	0	0	17686	17686
Uttar Pradesh	149366	3586	497	8356	0	5740	167545
West Bengal	3809	833	78138	892	0	0	83672

State/UT		PRI/GP/ Local Body	SMC/ VEC/WEC	SHG	NGO	Trust	Other	Total
Andaman and Nicobar Islands		0	0	0	0	0	338	338
Chandigarh		0	0	0	0	0	119	119
Dadra and Nagar Haveli		0	0	0	0	0	283	283
Daman and Diu		0	0	0	0	0	99	99
Delhi		0	0	0	3003	0	0	3003
Lakshadweep		39	0	0	0	0	0	39
Pondicherry		0	447	0	0	0	0	447
Total	**Freq.**	**189940**	**497219**	**304686**	**35441**	**2565**	**88879**	**1118730**
	%	**17.0**	**44.4**	**27.2**	**3.2**	**0.2**	**7.9**	**100**

D.3 Interview Codes

Table D.10: Interview Codes

Interview Number	Type of interviewee	Code	Interview Number	Type of interviewee	Code
1	Other (Bureaucrat)	IO1	22	Academic	IA4
2	Academic	IA1	23	Other (Bureaucrat)	I02
3	Academic	IA2	24	Academic	IA5
4	NGO	IN1	25	Academic	IA6
5	Government (District)	IG1	26	Academic	IA7
6	NGO	IN2	27	Academic	IA9
7	Government (District)	IG2	28	Academic	IA10
8	Government (District)	IG3	29	Other	IO3
9	NGO	IN3	30	Government (National)	IG11
10	Government (State)	IG4	31	Activist	IA11
11	NGO	IN4	32	Academic	IA12
12	NGO	IN5	33	Academic	IA13
13	NGO	IN6	34	Other (Journalist)	I04
14	Government (Block)	IG5	35	NGO	IN6
15	Government (District)	IG6	36	NGO	IN7
16	Government (District)	IG7	37	NGO	IN8
17	Government (District)	IG8	38	NGO	IN9
18	Government (Block)	IG9	39	Academic	IA14
19	Government (Block)	IG10	40	NGO	IN10
20	Government (Block)	IG111	41	NGO	IN11
21	Academic	IA3	42	Academic	IA15

Appendix E: Chapter 5

E.1 School Enrolment: India, Rajasthan and the Study Districts

E.1: School Enrolment- Absolute Figures (NUEPA, 2016)*

Characteristic		India		Rajasthan		Rajsamand		Udaipur	
		Eligible.	**Ineligible.**	**Eligible.**	**Ineligible.**	**Eligible.**	**Ineligible.**	**Eligible.**	**Ineligible.**
n		153,286,121	70076913	6,984,483	6358732	154,475	62,922	387,044	151,958
Gender	**Male**	75,315,735	39412601	3399117	3796375	78284	37854	196881	89292
Caste	**General**	25,658,037	23086184	594,583	1,384,134	18,277	19,185	31,863	56,630
	SC	29,345,686	9072022	1,573,674	908,541	21,582	7,833	18,832	13,425
	ST	17,354,255	3014974	1,434,984	455,935	31,826	2,140	270,622	26,872
	OBC	60,895,897	27789031	2,842,154	3,146,173	80,644	31,250	61,594	45,969
	Muslim	20,032,246	7114702	539,088	463,949	2,146	2,514	4,133	9,062

*Note: When divided by caste and gender, the total numbers of enrolled students are far higher. By school type alone, NUEPA data shows that 133.7 million students are enrolled in grades I-VIII in eligible schools. When disaggregated by gender and caste, the total enrolment is 153.2 million.

E.2: Enrolment in the sampled schools

Table E.2: Gender of the students enrolled in the sampled schools (NUEPA, 2016)

School	Total	Male		Female		School	Total	Male		Female	
		No.	%	No.	%			No.	%	No.	%
1	242	121	50	121	50	23	118	62	52.5	56	47.5
2	52	24	46.2	28	53.8	24	168	143	85.1	25	14.9
3	109	29	26.6	80	73.4	25	22	6	27.3	16	72.7
4	77	33	42.9	44	57.1	26	117	71	60.7	46	39.3
5	167	85	50.9	82	49.1	27	55	23	41.8	32	58.2
6	46	19	41.3	27	58.7	28	81	41	50.6	40	49.4
7	254	128	50.4	126	49.6	29	27	14	51.9	13	48.1
8	53	26	49.1	27	50.9	30	73	32	43.8	41	56.2
9	248	206	83.1	42	16.9	31	81	46	56.8	35	43.2
10	70	46	65.7	24	34.3	32	32	15	46.9	17	53.1
11	54	41	75.9	13	24.1	33	73	38	52.1	35	47.9
12	100	100	100.0	0	0.0	34	146	92	63.0	54	37.0
13	70	0	0.0	70	100.0	35	57	28	49.1	29	50.9
14	41	31	75.6	10	24.4	36	141	89	63.1	52	36.9
15	43	20	46.5	23	53.5	37	108	49	45.4	59	54.6
16	214	115	53.7	99	46.3	38	126	20	15.9	106	84.1
17	131	84	64.1	47	35.9	39	18	9	50.0	9	50.0
18	209	114	54.5	95	45.5	140	63	24	38.1	39	61.9
19	50	32	64.0	18	36.0	41	44	19	43.2	25	56.8
20	162	93	57.4	69	42.6	42	59	33	55.9	26	44.1
21	48	39	81.3	9	18.8	43	39	25	64.1	14	35.9
22	224	132	58.9	92	41.1						

Table E.3: Caste composition of the students enrolled at the sampled schools (NUEPA, 2016)

School	Total Enrolment	SC		ST		OB		Muslim		Other	
		Number	%	Number	%	Number	%	Number	%	Number	%
1	242	23	9.5	149	61.6	42	17.4	0	0	28	11.6
2	52	0	0.0	47	90.4	4	7.7	1	1.9	0	0.0
3	109	25	22.9	47	43.1	22	20.2	7	6.4	8	7.3
4	77	8	10.4	28	36.4	24	31.2	7	9.1	10	13.0
5	167	0	0.0	167	100.0	0	0.0	0	0	0	0.0
6	46	0	0.0	39	84.8	0	0.0	0	0	7	15.2
7	254	7	2.8	205	80.7	24	9.4	0	0	18	7.1
8	53	0	0.0	51	96.2	2	3.8	0	0	0	0.0
9	248	8	3.2	162	65.3	60	24.2	0	0	18	7.3
10	70	0	0.0	69	98.6	0	0.0	0	0	1	1.4
11	54	0	0.0	0	0.0	0	0.0	54	100	0	0.0
12	100	2	2.0	75	75.0	2	2.0	0	0	21	21.0
13	70	1	1.4	42	60.0	6	8.6	0	0	21	30.0
14	41	0	0.0	41	100.0	0	0.0	0	0	0	0.0
15	43	0	0.0	43	100.0	0	0.0	0	0	0	0.0
16	214	0	0.0	213	99.5	1	0.5	0	0	0	0.0
17	131	0	0.0	131	100.0	0	0.0	0	0	0	0.0
18	209	0	0.0	207	99.0	0	0.0	0	0	2	1.0
19	50	0	0.0	50	100.0	0	0.0	0	0	0	0.0
20	162	0	0.0	162	100.0	0	0.0	0	0	0	0.0
21	48	0	0.0	48	100.0	0	0.0	0	0	0	0.0

School	Total Enrolment	SC		ST		OBC		Muslim		Other	
		Number	%	Number	%	Number	%	Number	%	Number	%
22	224	0	0.0	224	100.0	0	0.0	0	0	0	0.0
23	118	11	9.3	47	39.8	27	22.9	25	21.2	8	6.8
24	168	57	33.9	51	30.4	44	26.2	6	3.6	10	6.0
25	22	0	0.0	22	100.0	0	0.0	0	0	0	0.0
26	117	19	16.2	64	54.7	6	5.1	0	0	28	23.9
27	55	1	1.8	52	94.5	2	3.6	0	0	0	0.0
28	81	21	25.9	11	13.6	24	29.6	0	0	25	30.9
29	27	0	0.0	27	100.0	0	0.0	0	0	0	0.0
30	73	0	0.0	16	21.9	18	24.7	0	0	39	53.4
31	81	0	0.0	11	13.6	12	14.8	0	0	58	71.6
32	32	0	0.0	22	68.8	5	15.6	5	15.6	0	0.0
33	73	26	35.6	1	1.4	41	56.2	0	0	5	6.8
34	146	10	6.8	11	7.5	45	30.8	0	0	80	54.8
35	57	0	0.0	2	3.5	27	47.4	0	0	28	49.1
36	141	14	9.9	16	11.3	92	65.2	0	0	19	13.5
37	108	11	10.2	68	63.0	29	26.9	0	0	0	0.0
38	126	13	10.3	4	3.2	46	36.5	0	0	63	50.0
39	18	0	0.0	0	0.0	4	22.2	0	0	14	77.8
140	63	0	0.0	0	0.0	63	100.0	0	0	0	0.0
41	44	0	0.0	0	0.0	44	100.0	0	0	0	0.0
42	59	0	0.0	59	100.0	0	0.0	0	0	0	0.0
43	39	0	0.0	39	100.0	0	0.0	0	0	0	0.0

E.3 Hindi Translations

Chapter 5

- A grade VIII student at CS1 wrote: '*Mai guar se tiffin nahin laati hun. Yeh fayda hai aur jo garib bacche hote hai unke ghar par khaana naa milte is liey unko fayda milta hai'* meaning 'I do not bring a tiffin from home, this is the benefit and for poor children who do not have food available at home, this is the benefit'. p.146.
- The mother at household 12 said: *'MDM se sabhi parivar ko fayda hai. Garib bacchon ko garm poshak khaana mil jaata hai jo ghar par nahin mil paata hai'* meaning 'all families benefit from the MDM. For poor children, hot nutritious food is available which is not available at home. p.147
- One student wrote: '*hamare vidyalay meh dur se aane wale bachon ke liey bhojan bahut laabh dayak hai. Kyonki hamare vidhyalay meh bacche panch km dure se aate hai'* meaning 'for those children coming from far away the meal is very beneficial. Because in our school children come from five kilometres away'. p.147.
- A grade VII student at CS3 wrote: '*Agar skul ka khaana band ho jaey to hamko naksaan hai… mid de mil se yah prabhav padta hai ki garib bacchon ke ghar par sabji roti nahin mil paati ho, to vah dopahar ka bhojan skul meh kha sakte hai'* meaning 'If school food stopped, then there would be a loss for us… from the mid day meal there is the effect that for poor children, if there is no *roti* or vegetable in their home, they can eat at school'. p.147.
- The interviewee at household nine stated *'khaana khaane ke liey hi jati hai'* meaning '[she] only goes for food' and the interviewee at household 12 stated '*Agar accha khaana aur roz khaana milega to bacche zyada se zyada skul jaenge*' meaning *'If good food and, daily, food is available then more children will go to school'*. p.151.
- A girl in grade VII at CS1 said *'Mai roz khana khati hun par kabhi-kabhi ghar se khakar aati hun, jab mai skul meh nahin kahti hun'* meaning 'I eat the food every day, but sometimes I come from home after eating, then I don't eat'.p.153
- For example, one boy from CS2 said '*Mai saptah meh ek bar hi khana khata hun,…mujhse vidyalay ka khana pasand nahin aur mai nahin khati hun'* meaning 'I eat the food just once a week because I do not like the food and I do not eat it'. p.153.
- As one student in grade ten wrote '*Skul meh ek se das tak klas sabhi ke diye jaate hai, jo hamare liey labhdaapak hai*' meaning '*In school, from class one to class ten everyone is given food, so for us there is a benefit'*.p.167/8.
- For example, one a female student in grade X stated '*Mai roz khana khati hun'* meaning 'I eat the food daily'. p.168.

- For example, a boy from grade X wrote: '*Hamare vidyaalay meen… accha khana banata hai, lekin mai subah ghar se vidyaalay aane se pahalee khaanaa khaake aattee hun. Isliey mai vidyaalay mem khaanaa nahin khaataa hun…. Sirf dal chawal acche banate isliey mai dal chawal hi khata hun'* meaning 'In our school, good food is made but I eat in the morning at home before coming to school, therefore I do not eat food at school. Only *dal* rice is good, therefore I just eat *dal* and rice'.p.168.

Chapter 6

- As one student wrote '*phal dete hain, lekin do hafte meh ek bar dete hai, kabhi nahin dete, kabhi har mangalvar ko dete hai'*, meaning '[they] give fruit, but once in every two weeks, sometimes [they] don't give and sometimes [they] give every Tuesday'. Students at CS4 confirmed fruit was not served. For example, a student in class VI wrote '*hamare khaane meh, phal-fruit nahin aate hai, isliey hamare khaane meh kela, angoor, ciku, aati chahiey'* meaning 'in our food, there is no fruit, therefore in our food, there should be banana, grapes and chiku'. p.190
- Student 28 wrote *'kadhi meh besan kam hota hai. Aloo ki sabji meh aloo kam daalte hai. Aur hamare vidhyalay chawal nahin hai. Chawal chahiey'* meaning 'In the *kadhi*, there is less gram flour. In the potato vegetables, few vegetables are put and in our school there is no rice. Want rice!'. p.197.
- At CS2, students particularly complained that just '*ek-ek roti dete hai'* meaning 'just one *roti* is given'. p.198.
- For example, a grade VI student wrote '*hamko tin chammach chawal chahiey'* meaning 'we need three spoons of rice' and another student also in grade VI wrote '*to roti hamen char milte to acchi bat ho*' meaning 'it would a good thing to have four breads'. p.198.
- At case studies one and two there was no clear trends in preference. This was captured by one insightful student at CS2 two, who wrote: '*hamare vidhyalay meh sabhi bacce alag-alag khana pasand karte hai, koi roti-dal, koi khichdi, koi dal chawal… khana pasand karta hai'* meaning 'In our school, all children like different food, some like khichdi, some like dal rice'. p.212.
- For example, a grade X student at CS2 wrote: '*hamare vidyaalay meh swadisht khaana dal chawal hai…is din vidyaalay ke bacche khana khaate hai…kharaab khaana roti sabji… hai. Is din Xth kaksha ke bacce khana nahin khaate hai*' meaning 'in our school, dal and rice is delicious food and on this day the school children eat the food. The bad food is *roti* and vegetables…On this day children from 10th class don't eat the food. p.212.
- The interviewee at household 18 at CS3 stated that their child did not go to school very often, but when there is special food then they go, stating '*15 august ya 26 janvari ko bacchon ko mithai dete hai, eise moke par bacche skul ki taraf bhagte hai'* meaning of 15th august [independence

day] or 26th January [Republic Day] children are given sweet, on such occasions children run towards school'. p.327.

- At CS1 one student wrote: *'bacchon ko kadhi chawal evan dal chawal pasand hai lekin chwal kam hone ke karan kadhi chawal evan dal chawal bahut kam banate hai'* meaning 'children like *kadhi* and rice and *dal* and rice, but there is less rice so because of this *kadhi* and rice and *dal* and rice are made very less'. p.2123.

Chapter 7

- A female student in grade VII wrote: '*kabhi bai ji nahin aate hai to khaana hamen bana parta hai'* meaning *'sometimes the cook does not come, so we have to make food'*. This was confirmed by a younger male student in grade V who wrote: '*hamari baiji kabhi kabhi skul meh khana nahin banaane aati aur hamari didi bana dete hai'* meaning 'our cook sometimes doesn't come to school to make food and our older 'sisters' make food'.p.226.

E.4 Food Consumption and Food Security

E.4.1 Food Consumption in Household Survey Two

Table E.4 presents the results from the food consumption survey in HS2 by case study. All respondents consumed staples daily; however, the consumption of the other food groups varies across the case studies. For all food groups, the lowest frequency of consumption was found at CS3.

Table E.4 FCS frequency by case study, household survey two

Food Group	Case Study	Number of times consumed past 7 days							
		0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Pulses	CS1	1	3	16	15	3	2	0	2
	CS2	5	9	17	8	2	0	0	0
	CS3	13	14	6	0	0	0	0	0
	CS4	5	18	4	13	0	0	0	0
Vegetables	CS1	1	0	13	9	5	2	3	9
	CS2	0	3	5	10	3	1	0	19
	CS3	8	17	5	2	1	0	0	0
	CS4	3	23	18	6	0	0	0	0
Fruit	CS1	19	17	3	0	1	0	0	2
	CS2	18	21	0	0	0	0	0	2
	CS3	32	1	0	0	0	0	0	0
	CS4	21	26	3	0	0	0	0	0
Meat/fish	CS1	24	17	1	0	0	0	0	0
	CS2	38	9	0	2	0	0	0	2
	CS3	30	3	0	0	0	0	0	0
	CS4	40	10	0	0	0	0	0	0
Milk/dairy	CS1	1	0	1	2	3	0	0	35
	CS2	2	0	1	1	1	1	1	34
	CS3	23	0	2	1	3	0	0	4
	CS4	2	0	0	2	2	0	9	35
Sugar	CS1	1	0	0	0	1	0	0	40
	CS2	0	0	0	0	0	0	0	41
	CS3	2	0	2	0	5	0	2	22
	CS4	0	0	0	0	0	1	2	47
Oil	CS1	1	0	0	0	1	0	1	39
	CS2	0	0	0	0	0	0	0	41
	CS3	0	1	11	8	4	0	1	8
	CS4	0	0	0	2	4	2	2	40
Condiments	CS1	1	0	0	0	0	0	0	41
	CS2	0	0	0	0	0	0	0	41
	CS3	0	0	1	1	1	0	3	27
	CS4	0	0	0	0	0	0	0	50

E.4.2 Number of Meals per day

Table E.5: The number of meals consumed per day by location

Data Source	Location	Number of meals including the MDM					
		0	**1**	**2**	**3**	**4**	**5**
HS1	Girwa	0	1	54	18	25	1
	Kotra	0	7	47	45	2	0
	Khamnor	0	0	59	23	4	0
	Kumbhalgarh	0	0	54	54	4	0
	Total	0	8	214	140	35	1
Household recall	CS1	1	2	43	47	0	0
	CS2	0	5	17	38	0	0
	CS3	0	4	93	2	0	0
	CS4	0	1	143	28	0	0
	Total	1	12	296	115	0	0
Student survey	CS1	0	2	24	35	1	0
	CS2	0	10	45	55	20	7
	CS3	0	0	15	7	0	0
	CS4	0	0	52	58	0	0
	Total	0	12	136	155	21	7
Student recall	CS1	2	3	46	73	0	0
	CS2	2	0	24	76	0	0
	CS3	0	0	40	0	0	0
	CS4	0	1	110	12	0	0

E.4.3 Food Insecurity in Household Survey One by Location

Table E.6 shows the percentage of households in each location experiencing food insecurity

Table E.6: Food Insecurity by location, household survey one

Location	Percentage of households that were food insecure	Location	Percentage households that were food insecure
1	33.3	23	100
2	10	24	30
3	10	25	80
4	10	26	30
5	0	27	0
6	63.6	28	30
7	9.1	29	10
8	30	30	80
9	10	31	60
10	70	32	66.7
11	0	33	80
12	0	34	30
13	37.5	35	50
14	80	36	40
15	90	37	60
16	100	38	100
17	62.5	39	90
18	66.7	40	70
19	70	41	80
20	63.6	42	80
21	70	43	100
22	20		

E.5 Impact

Tables E.7 and E.8 show the correlation between answers in HS1 and HS2 respectively. All correlations are significant (p=<0.001).

Table E.7: Correlation between answers, household survey one

	Enrol -ment	**Attend -ance**	**Perform- ance**	**Health**	**Other Children**	**Food at home**	**Money home**	**Caste relations -ships**
Enrolment	1.00	0.99	0.	0.58	0.49	0.51	0.53	0.48
Attendance	0.99	1.00	0.77	0.59	0.50	0.52	0.54	0.48
Performance	0.78	0.77	1.00	0.61	0.62	0.54	0.54	0.52
Health of child	0.58	0.59	0.61	1.00	0.71	0.72	0.71	0.47
Food at home	0.51	0.52	0.54	0.72	0.87	1.0	0.94	0.55
Money at home	0.53	0.54	0.54	0.71	0.84	0.94	1	0.59
Caste relationships	0.48	00.48	0.52	0.47	0.59	0.55	0.59	1

Table E.8: Correlation between answers, household survey two

	Enrol- ment	**Attend- ance**	**Perform- ance**	**Health**	**Food home**	**Money home**	**Caste**	**Time**
Enrolment	1.00	0.88	0.82	0.68	0.68	0.54	0.34	0.35
Attendance	0.88	1.00	0.86	0.66	0.66	0.57	0.32	0.35
Performance	0.82	0.86	1.00	0.71	0.71	0.59	0.40	0. 0.44
Health of child	0.68	0.66	0.71	1.00	0.67	0.61	0.43	0.50
Food at home	0.54	0.57	0.59	0.54	1	0.76	0.70	0.70
Money at home	0.47	0.46	0.48		0.76	1	0.81	0.66
More time	0.34	0.32	0.40	0.43	0.43	0.70	1.00	0.73
Caste relationships	0.35	0.35	0.44	0.50	0.50	0.70	0.73	1.00

E. 6 Variation number working days from AWPB

Table E.9: Expected and Actual working days April-December 2015

State	Expected	Actual	%	State	Expected	Actual	%
Andhra Pradesh	160	160	100	Nagaland	173	121	69.9
Arunachal Pradesh	160	158	98.75	Odisha	164	163	99.4
Assam	144	144	100	Punjab	174	172	98.9
Bihar	178	137	77.0	Rajasthan	163	163	100
Chhattisgarh	166	160	96.4	Sikkim	187	187	100
Goa	153	151	98.7	Tamil Nadu	158	158	100
Gujarat	167	161.36	96.6	Telangana	157	157	100
Haryana	173	183	105.8	Tripura	166	166	100
Himachal Pradesh	177	183	103.4	Uttar Pradesh	173	160	92.5
Jammu and Kashmir	193	162	83.9	Uttarakhand	174	172	98.9
Jharkhand	188	183	97.3	West Bengal	166	152	91.6
Karnataka	167	166	99.4	AN	150	150	100
Kerala	138	133	96.4	Chandigarh	178	176	98.9
Madhya Pradesh	167	160	95.8	DN	160	160	100
Maharashtra	151	150	99.3	DD	145	146	100.7
Manipur	169	154	91.1	Delhi	165	152	92.1
Meghalaya	172	167	97.1	Lakshadweep	148	147	99.3
Mizoram	170	170	100				

E.7 Out-of-School Children

Determining the number of out-of-school children in India is difficult due to variations in figures (Table E.10). The 2011 Census found 38.1 million children aged 6-13, 18.3% were out-of-school, of which 32 million had never attended an education institution (GOI, 2011). Even when the figures are adjusted to account for the census being conducted at the beginning of the school year, it is still estimated that 29 million 6-13 year olds are out-of-school (UNESCO, 2016). The 2014 National Sample Survey on Out-of-School Children, a study commissioned by the GOI, found that 6.04 million children between 6-13 years were out-of-school, equating to 2.97% of this age group (Social and Rural Research Institute, 2014). Using the data from household surveys, UNICEF (2014) calculated that 17.8 million children between 5-13 years were out-of-school. Using NSSO 2014 data, UNESCO found that between 19.04-19.25 million 6-13 year olds were out-of-school, equivalent to 9.4% of the age group (2016: 46). Using the Unified District Information System for Education (U-DISE) data, UNESCO calculate that between 16.04 and 17.64 million 6-13 year olds were out-of-school, equivalent to 7.88% and 8.61% of the age group respectively. Estimates of the number of out-of-school children therefore vary by more than 30 million (Table E.10).

Table E.10 Varying estimates of the number of out-of-school children in India (in UNESCO, 2016)

Survey	**Out-of-school children (millions)**			**Percentage of 6-13 year olds**
	6-10 years	**11-13 years**	**6-13 years**	
Census (2011)	28.6	9.5	38.1	18.3
Census (2011) age adjusted	17.5	11.5	29.0	13.9
SRRI (2014)	3.4	2.7	6.1	2.97
NSSO (2014)	13.65-13.97	5.28-5.39	19.04-19.25	9.4
U-DISE	7.14-10.24	7.40-8.90	16.04-17.64	7.88-8.61

Reasons for these large differences include different definitions of what constitutes an out-of-school child, flaws in data collection and estimation processes, unreliable reporting from schools and a varied schooling system across India which means that enrolment ages and when the school year vary (Bhatty, 2015; UNESCO, 2016).

The question of which data source is the more reliable and should be used therefore arises, and does not have a simple answer. U-DISE data is annual and can be accessed for free; however, the data does not contain information on children's socio-economic background, other than caste and religion (UNICEF, 2016). Consequently, household surveys are needed to verify the data and collect more detailed information (*ibid*). The Census covers every household (Kurian, 2015) and thus provides information on vulnerable households that might be excluded from other surveys (UNICEF, 2016).

However, Census data is only collected every 10 years. The data from the Social and Rural Research Institute (2014) collected data on social groups, however the sample was just 99,929 households across 640 districts.

Whilst recognising these limitations, in Section 5.6.4, I use Census data to show the number of out-of-school children in Rajasthan as Census data contains information for the district as well as state level. To show the profile of those out-of-school, I use data from the National Sample Survey on Out-of-School Children by the Social and Rural Research Institute (2014). Although the data is surely limited and, I believe, does not reflect the true extent of out-of-school children in India, it does provide a useful insight into the profile of those out-of-school, which are corroborated by other authors and sources of data (UNICEF 2014a; UNICEF 2014b;).

Appendix F

Chapter 6

F.1 Adherence to the Menu

Here, I examine the expected frequency (EF) and observed frequency (OF) of each meal on the menu. Expected frequency is the number of times a meal is expected to be served based on the days (e.g. if schools were surveyed on three Thursdays, the expected frequency for *khichdi* is three). Observed frequency is the number of times the meal was served. I also report whether the meal was served on the correct day. Table F.1 presents the results for schools under the decentralised model of MDM delivery. In general, *khichdi* was served more often than expected, whilst the other meals were served less frequently than expected. In total, a meal listed on the state menu was served on 50 of 70 days; however, the correct meal was served on the correct day on just 23 days (32.9%). Meals not on the menu were served on 20 occasions; far more frequently than the one day a week on which food should be served according to local taste. Of the meals not on the menu, *dal dhokli* was served most commonly (11 times). No food was served on four occasions and rice, *namkeen*, *roti* and *kadhi*, rice and *kadhi* and rice and potato were all served once.

Table F.1: Food served at sampled schools in observation

	***Roti*, vegetables**		**Rice, *dal*, vegetables**		***Roti*, *dal***		***Khichdi***	
	EF*	**OF**	**EF**	**OF**	**EF**	**OF**	**EF**	**OF**
Round 1	8	3	9	2	11	8	4	9
CS1	3	5	4	2	4	1	3	3
CS2	2	5	2	0	5	1	2	2
CS3	6	2	2	3	4	2	1	2
Total	**19**	**15**	**17**	**7**	**24**	**12**	**10**	**16**

The results from the case study records are presented in Table F.2 According to the records, the food was served as per the menu on 5 of 21 days (23.8%) at CS1 and on 34 of 54 days (63.0%) at CS2. As mentioned in Section 6.2.1, the greater adherence at CS2 however is due, at least in part, to inaccurate records. For eight days, our observation overlapped with the records. On one of the eight days, the food

reported in the records was incorrect; *roti* and vegetables were recorded but actually *dal dhokli* was served. The monitoring reports conducted by the block officials in Girwa and Kumbhalgarh were also analysed to assess the extent to which the trends found were applicable to other schools (Table F.2). Overall, the correct food was served on 25 of 36 occasions (69.4%). *Roti* and *dal* were served far less frequently than expected and khichdi was served almost the correct number of times. Meals not on the menu were served on 8 days (22.2%). *Dal dhokli* was served six times, rice and *kadhi* once and *dal bati* once. However, there are significant limitations in the monitoring reports and thus the data taken from them. Firstly, the food being served is often not recorded. In the Girwa records, the food was recorded 36 out of 109 times. Secondly, according to the reports, all monitoring in Girwa block was conducted on a Wednesday or Thursday. Given the previously identified tendency to serve these items, this limits the insight that can be gained from the records.

Table F.2: Menu adherence according to records

	***Roti*, vegetables**		**Rice, *dal*, vegetables**		***Roti*, *dal***		***Khichdi***	
	EF	**OF**	**EF**	**OF**	**EF**	**OF**	**EF**	**OF**
CS1 Records	7	8	4	0	7	8	3	1
CS2 Records	18	22	9	6	18	18	9	5
Girwa records	0	1	0	1	17	8	19	18
Total	**55**	**57**	**38**	**18**	**62**	**42**	**28**	**29**

Three key trends emerge from the data presented above. Firstly, there is significant deviation from the state-level menu. Some variation is to be expected; however, overall the correct food was served on the correct day on 57 days of 145 days (39.3%). When the results from the monitoring records are removed, the correct food was served on just 18 of 70 days (25.7%). Secondly, the results in Table F.1 and Table F.2 show the tendency to serve certain foods instead of others. Overall, *roti* and vegetables and *khichdi* were served the expected number of times, whereas *roti* and *dal* and particularly rice and *dal* were served far less frequently than expected. Thirdly, in all cases the observed frequency is lower than the expected frequency. This difference is due to meals not on the menu being served. Of the food not on the government menu, *dal dhokli* was served the most frequently. The school, cook and household surveys indicated that certain schools may cook *dal dhokli* even more frequently than the above suggests. The teachers or cooks at schools one, nine, 10 16, 18 and 19 said that they made *dal dhokli* frequently. In the surveys, households with children going to schools 15 and 19 reported that *dal dhokli* is nearly always made. Interviewees at CS3 also reported that *dal dhokli* was typically served. The frequently serving of *dal dhokli* is likely due to the fact that it is easy to make and does not require vegetables.

Centralised Model

The same calculations were conducted for the schools served by centralised kitchens. Table F.3 shows the results from Khamnor. It should be noted that when *dal* and *roti* were served, rice was served as an additional item and when *khichdi* was served it was accompanied by *kadhi* and *roti*. When compared to the GOR's menu, overall, *roti* and *dal* were served more frequently than expected, *khichdi* and particularly *roti* and vegetables were served less often than expected. The correct food was served on 4 of 31(12.9%) days during the school visits.

Table F.3: Food served in the centralised model (observed)

	***Roti*, vegetables, rice**		***Roti*, *dal*, sweet rice**		**Roti, *dal* or *dal bati***		***Khichdi***		***Roti* and vegetables**	
	EF	**OF**	**EF**	**OF**	**EF**	**OF**	**EF**	**OF**	**EF**	**OF**
Round 1	5	2	1	0	2	6	2	2	0	0
Cs4	7	10	3	4	3	4	4	3	3	0
Total	**12**	**12**	**4**	**4**	**5**	**10**	**6**	**5**	**3**	**0**

The records from CS4 and schools 25 and 29 were also analysed to provide insight into temporal patterns. The results are shown below in Table F.4.

F.4 Food served in the centralised model (records)

	***Roti*, vegetables, rice**		***Roti, dal*, sweet rice**		***Roti, dal* or *dal bati***		***Khichdi***		***Roti* and vegetables**	
	EF	**OF**	**EF**	**OF**	**EF**	**OF**	**EF**	**OF**	**EF**	**OF**
CS4	137	98	66	40	73	158	65	56	66	32
School 25	75	65	37	28	40	79	33	37	38	8
School 29	64	32	30	0	35	120	29	10	30	20
Total	**276**	**195**	**133**	**68**	**148**	**357**	**127**	**103**	**134**	**60**

The records show all meals were served less than expected with the exception of *roti* and *dal*. The type of meals on the menu were served on 783 of 817 days (95.8%); however, the correct meal was served on the correct day on 163 of 817 days (20.0%). Overall, from the results displayed in tables F.3 and F.4 show a low adherence to the menu in the centralised delivery model. This pattern of results can be explained by the centralised kitchen using their own menu as is discussed in Section 6.2.1.

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